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ON

THE PRINCIPLES OF INTERNAL SECRETION.*

BY

W. LANGDON BROWN, M.A., M.D.CANTAB., F.R.C.P.,

PHYSICIAN WITH CHARGE OF OUT-PATIENTS TO ST. BARTHOLOMEW'S HOSPITAL.

I TAKE it we all believe, though perhaps to a varying extent, that the functions of the body can be controlled by chemical means. Otherwise we could hardly justify to ourselves our daily administration of drugs. And justification can be found in the fact that the body regulates itself by drugs which it specially prepares.

To a certain extent every product of cell activity has an effect on every other tissue. It is of interest to note that the more widely tissues differ, the more they can make use of the end products of the other's metabolism. Thus while animals ultimately depend on vegetables for their food, the CO_2 excreted by animals is actually a food for plants, and their urea, once it has undergone ammoniacal decomposition, acts as an important source of nitrogen to them. For animals such substances are merely stimulant in the sense that they contribute to the process of their own removal. Thus CO_2 is a respiratory stimulant and in small doses actually improves the contractions of the heart. By this action on respiration and circulation its excretion is facilitated. Similarly urea is a diuretic, which is an obvious advantage. But neither CO_2 nor urea can act as a food to animals, or quicken their vital processes in any other way. It is true that an intermediate product of metabolism, creatin, which is produced by muscles, is a stimulant to gastric secretion and increases the rate of growth. But it may be asserted in general terms that the more similar tissues are the less can the one make use of the other's end products of metabolism. They require a specially elaborated secretion to produce a beneficial action. Of such secretions the hormones produced by ductless and other glands are outstanding examples. Another thing which we can learn from comparing animal and vegetable processes is the powerful effect of even infinitesimal doses. In recent years we have found that, in addition to a proper ration of protein, carbohydrates, fats, and salts, animals require minute doses of vitamines. Such vitamines appear to be produced solely by vegetable tissues, though they may remain stored up in the tissues of animals that have consumed such vegetables. In the absence of such vitamines certain deficiency diseases develop, showing again the dependence of animal upon plant life. Vitamines are as characteristic of vegetable as are hormones of animal life, and chemically they are not greatly dissimilar, while both are intensely effective in minute doses. That the lack of either may produce somewhat similar effects can be seen on comparing (1) rickets (due to the absence of vitamine A) with osteomalacia; (2) the neuritis of beri-beri (due to the absence of vitamine B) with that of diabetes; and (3) scurvy (due to the absence of vitamine C), with the form of purpura due to acute adrenal deficiency. McCarrison's recent observation on the endocrine changes produced by vitamine defect are interesting in this connexion. He showed that while the adrenals and pituitary enlarged, the other endocrine glands showed more or less atrophy. Whether such enlargement is compensatory or not we cannot say as yet, but it illustrates, at any rate, the close relationship between hormones and vitamines.

Yet another *a priori* proposition I would commend to your notice is that response to chemical stimuli is only to be expected when we remember that before a nervous system developed it was to such stimuli alone that primitive animals could react. As Starling pointed out in enunciating his hormone theory, the development of a nervous system enabled much more rapid reactions to occur. We might express it by saying that a nervous system is to a multicellular organism what the telegraph is to an organized community. As I have elsewhere pointed out, the first and most essential purpose for which such rapid reactions would be required would be for self defence. In accordance with this the lowest level of the nervous system, the sympathetic, is pre-eminently defensive in its action. But we should expect that the newer rapid method would remain associated with the older slower methods, so that as the chemical reactions became specialized in the endocrine glands, these glands interacted especially with the sympathetic nervous system. This association is particularly well seen in the case of the adrenals. In a former lecture[1] I pointed out that originally there were cells in the central nervous system which were the common ancestor of both the sympathetic ganglion and the adrenalin-secreting cell. As the sympathetic system develops in higher vertebrates the adrenalin-secreting cells become gradually restricted to the medulla of the adrenals. Thus the nervous element steadily acquires predominance over the chemical element in the partnership.

Another generalization we can make is that many of the endocrine glands are closely associated with the reproductive organs. The moment animal life passed from unicellular to multicellular forms it lost its personal physical immortality. When a protozoön multiplies by simple fission, as Milnes Marshall said, the parent disappears without having died, and the children appear without having been born. But in all multicellular organisms special cells are set apart for carrying on the race. Multicellular animals having appeared before a nervous system was developed, we should expect the reproductive glands to remain closely associated with the older chemical reactions now specialized in the endocrine glands. The endocrine glands, the reproductive organs, and the sympathetic nervous system therefore remain as a basic tripod, and it is not likely that a disturbance will occur for long in one limb of this tripod without affecting the other two. As this relationship is most clearly seen in the endocrine group of adrenal, thyroid, and pituitary, I will deal with these first.

ADRENALS.

While the medulla is an outgrowth of the sympathetic nervous system, the cortex is developed from the Wolffian body which also provides the interstitial cells of the reproductive glands. Conformably with their origin, disturbances of the medulla chiefly affect the sympathetic nervous system, and of the cortex the reproductive system. The influence of tumours of the adrenal cortex in producing premature sexual development is an example of the latter.

Stimulation of the sympathetic nervous system produces a whole series of effects all calculated to facilitate violent action in the direction of fight or flight. The pupil dilates to increase perception of light, the blood pressure rises to assist circulation, and the heart beats faster. The skin sweats to cool the body heated by exertion, and the blood sugar increases the better to feed the active muscles, even overflowing into the urine if it is not made use of. In some animals the hairs become erect to render them more formidable. Now an injection of adrenalin, which is a secretion purely of the medullary part of the gland, produces in every particular the same effect as the stimulation of the sympathetic. Their action is reciprocal, for the sympathetic stimulates the secretion of adrenalin, while adrenalin increases the sympathetic response. We have little evidence in disease of overaction of adrenalin, though it is possible that some conditions of raised blood pressure with glycosuria in later life are due to this, since they may be induced by overstrain and worry, which irritate the sympathetic, and adrenalin excess would raise both the pressure and the sugar of the blood. But we have a clear-cut example of adrenalin defect in Addison's disease, in which all the symptoms can be attributed to loss of sympathetic action. Failure of its inhibitory action on the stomach would tend to vomiting, and of its stimulating effect on the vaso-constrictor nerves to low blood pressure and a relaxed condition of the peripheral vessels which would lead to pigmentation. The asthenia is not only due to low blood pressure, for adrenalin has a tonic effect on striped muscle. Conformably with all this we find in Addison's disease a rise in sugar tolerance—the reverse of the condition exciting glycosuria. When the medulla of the adrenals is destroyed suddenly by haemorrhage instead of gradually by tuberculosis, an acute condition arises instead of the more chronic condition of Addison's disease. But the conditions are strictly comparable—purpura replacing pigmentation.

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It has generally happened that the fully developed form of a morbid condition has been recognized before the minor degrees. Thus ataxia was first regarded as a necessary part of tabes, and slighter non-progressive forms escaped diagnosis. Thus also myxoedema and cretinism were identified long before the minor forms of hypothyroidism. The same is true of hypo-adrenalism. Remembering the strain thrown on the sympathetic in responding to prolonged mental and physical conflict or to infection, it is only to be expected that adrenalin exhaustion might ensue. This has actually been proved in an acute infection such as diphtheria (Elliott and Tuckett), as well as in more chronic diseases. It has been suggested with every show of reason that adrenalin exhaustion enters into many war neuroses and other functional states characterized by lack of vascular tone, vasomotor instability, and myasthenia, especially when accompanied by a low blood pressure.

Thyroid.

There is an equally close association between the thyroid gland, the reproductive organs, and the sympathetic. The thyroid tends to enlarge at puberty, marriage, and in pregnancy, while myxoedema is most apt to occur just after the climacteric. Amenorrhoea is common, even in the minor forms of hypothyroidism. The effect of sympathetic irritation in producing thyroid enlargement and Graves's disease is now recognized. Cushing showed that if in cats he sutured the phrenic nerve to the cervical sympathetic so that every respiration stimulated the latter, he could produce the symptoms of Graves's disease. The influence of distressing emotions in producing hyperthyroidism was well shown during the air raids on London. Epidemics of Graves's disease also followed the Kishineff massacres and the San Francisco earthquake. Again, if a distressing emotion has a matrimonial origin it is particularly likely to induce Graves's disease, for here each limb of the basic tripod is involved. The disease has been compared with a state of continuous fear, a description which tallies with its general appearance.

But not only does the sympathetic stimulate the thyroid; the thyroid secretion also lowers the threshold to sympathetic stimulation. Thus a vicious circle is established. In time the thyroid gland may become exhausted, and symptoms of myxoedema become combined with those of Graves's disease. This accounts for those remarkable cases of thyroid instability described by Rothschild and Leopold Levi, striking instances of which I have seen myself. The impending thyroid exhaustion shows itself in little spurts of over-secretion imposed upon a background of continuing myxoedema. It is a condition of irritable weakness, as seen in various other nervous disorders, particularly the occupation neuroses, and it calls for the cautious administration of small doses of thyroid extract to steady the fluctuating secretion. Like adrenalin, thyroid secretion mobilizes the blood sugar; in hyperthyroidism the sugar tolerance is lowered, and there may be glycosuria. As is well known, it is easy to produce glycosuria by over-dosage with thyroid extract.

Fully developed thyroid insufficiency, as expressed in myxoedema and cretinism, are too well known to detain us. We are chiefly indebted to Hertoghe for our knowledge of its minor degrees. He pointed out that the thyroid both governed the building up of the cells and regulated the destruction of the protein molecule and its elimination. Therefore with thyroid insufficiency there will be defective growth, which will be most noticeable in the young subject, while in the adult there will be accumulation of material which should be katabolized. He attributes to a minor degree of thyroid insufficiency such symptoms as relaxation of the articular ligaments, particularly in the knee, heel, ankle, and thoracic vertebrae, causing knock-knee, painful heel, flat-foot, and lordosis. Infiltration of tendons and fascia may produce rheumatoid pains. He attaches considerable importance to the loss of hair in the outer half of the eyebrow. Enuresis he believes to be frequently due to the same cause. Thyroid inadequacy diminishes the coagulability of the blood, which explains the tendency to haemorrhage. Infiltration of the nerve centres causes mental slowness, partial or entire loss of memory, and difficulty in expressing ideas. Sometimes there are hallucinations of sight and hearing. Headache, giddiness, and somnolence are not uncommon. The liability of myxoedematous subjects to develop atheroma suggests the use of thyroid extract in premature arterial degeneration.

Pituitary.

The pituitary body also shows the twofold association with the reproductive organs and the sympathetic nervous system. Like the adrenals, it has a double origin, a glandular portion growing up from the epithelium of the buccal cavity, partly surrounding an outgrowth from the central nervous system. In both cases it is the nervous part which produces a well-recognized secretion. The anterior glandular part of the pituitary appears to have an effect on body temperature, growth, the cutaneous tissues, and the reproductive organs. Removal or disease of this lobe leads to a subnormal temperature, and an injection of its extract then causes a febrile reaction, a point of diagnostic value. If the anterior lobe be removed in young animals, the development of both primary and secondary sexual characters is much interfered with, while that infantile gland, the thymus, remains large. In human beings over-secretion shows itself, as in acromegaly, by overgrowth of the skeleton and the skin, and hypertrichosis, while under-secretion leads to a smooth, hairless, plump condition of the skin, with amenorrhoea or impotence.

I am sure that minor degrees of hypopituitarism of this type are not uncommon. The condition of the skin and subcutaneous tissues recalls myxoedema, but the mental state remains active. The obesity is very marked. A curious point, to which I have not seen attention called, is the frequent occurrence of polycythaemia. I believe adiposis dolorosa is a related condition, and I recently saw an example of it in which a skiagram showed an enlargement of the pituitary fossa into which the anterior clinoid process dipped down.

The intermediate part of the gland, though closely adherent to the posterior, is derived from the anterior lobe. It influences carbohydrate metabolism. In excess its secretion lowers sugar tolerance, and may excite glycosuria; when it is in defect, giving even very large amounts of sugar will not cause glycosuria.

The secretion of the posterior lobe, pituitrin, is mainly a stimulant to plain muscle, and also to the secretion of milk. Its action on plain muscle is better seen in an emergency than under normal conditions. Thus it does not usually influence a normal blood pressure, but raises it when lowered by shock; it acts on a failing heart, but not on a normal one; it has little effect on the plain muscle of the bowel, except when it is paralysed as in post-operative conditions; it does not cause contractions of the uterus until labour has begun and inertia is present. The way it acts on diuresis is still a matter of controversy, but it is clear that disease of the posterior lobe is often the cause of diabetes insipidus. Stimulation of the sympathetic nerves to the gland may cause both glycosuria and polyuria. Probably hysterical polyuria is thus produced. But the reciprocal action of the gland on the sympathetic is not so clearly seen as in the adrenals and thyroid, unless the examples quoted above may be taken as instances. Like the thyroid it enlarges in pregnancy, producing a curious and characteristic effect on the facies. The glycosuria of pregnancy is no doubt due to its stimulating effect both on the thyroid and pituitary.

Some of the main functions of this group of endocrine glands may be expressed in tabular form thus:

	Sex.	Growth.	Vasomotor System.	Glycosuria.
Thyroid	+	+	Dilator	+
Adrenals—				
Cortex	+	+	0	0
Medulla... ...	0	0	Constrictor	+
Pituitary—				
Anterior ...	+	+	0	0
Intermediate ...	0	0	0	+
Posterior ...	Galactagogue.	0	Constrictor	0

It will be noted that the main functions of these glands are katabolic. They throw sugar into the blood stream for active consumption, they co-operate with the sympathetic

in defensive activities, they divert the stream of energy outwards, they are accelerators.

Stomach, Duodenum, and Pancreas.

I now turn to a group of glands whose main functions are anabolic. These co-operate with the vagus—that is, the parasympathetic rather than the sympathetic—they divert the stream of energy inwards, they are not spendthrifts, but economizers. I refer to the endocrines of the stomach, duodenum, and pancreas, and also to the parathyroids. Gastric digestion is started by the appetite and the taste of food reflexly stimulating the vagus, but it is continued by a hormone in the pyloric glands, which spur the fundus glands on to renewed effort. Thus gastric secretion is continued after the hunger is appeased and the appetite satisfied. In its turn the acid gastric juice, entering the duodenum, acts on its mucosa to form *secretin*, which is the hormone for the secretion of pancreatic juice. But, as is well known, the pancreas forms an internal secretion as well—it is bipolar in its activity. This secretion promotes the assimilation of sugar, probably by linking it on to larger molecules both in the blood and in the tissues. Quantitative reductions in this secretion may give us all the stages between a slight lowering of the carbohydrate tolerance and a "total" diabetes. Co-operating with the parasympathetic as these glands do, they assist in its task, which Cannon has defined as the quiet building up of reserves against a time of strain and stress.

Parathyroids.

The evidence is not quite so clear as to the parathyroids. Some have held that they are merely adjuvant to the thyroid, but at the present time they are generally regarded as antagonistic. The varying results of thyroidectomy in different animals can be explained according to whether the parathyroids were simultaneously removed or not. Severe nervous symptoms only occurred with their removal. MacCallum showed that the parathyroids in some way controlled the distribution of calcium in the body. When their secretion is deficient the tissues lose some of their calcium. As this calcium has a sedative action on nerve cells, this loss increases nervous excitability, which is particularly apt to express itself in tetany. Parathyroid extract has been found, both in animals and man, to be helpful in controlling tetany due to injury or removal of these glands. There are a number of other conditions in which tetany occurs, but it would appear probable that here, too, the symptom is due either to a deficiency of calcium salts or some impairment of parathyroid function, possibly of toxic origin.

Other Endocrine Glands.

I need refer but briefly to the other endocrine glands. The interstitial cells of the reproductive glands no doubt form an internal secretion of great importance, particularly in the development of secondary sexual characters, but they have not been definitely isolated, and they appear to interact chiefly with the first group of ductless glands I described. The obesity which follows loss of such internal secretions is very likely due to their interaction with the thyroid and pituitary. A comparison of the results following ligature of the whole spermatic cord, with those of tying the vas deferens only, gives us the most definite idea of the action of such an internal secretion. In so far as the carotid and coccygeal glands have any action they would appear to be adjuvant to the adrenals. The thymus may be looked upon as mainly an infantile blood-forming organ. But overaction of the thyroid appears to cause hypertrophy of the thymus, particularly of its Hassell's corpuscles, which may possibly be of an antagonistic character. It is, at any rate, of interest to note that in exophthalmic goitre the thymus always hypertrophies. Its persistence in infantilism, and its disappearance with sexual maturity, points to a function which usually ends with childhood. The acquisition of the adult blood picture and the disappearance of the thymus are generally simultaneous. The enlargement of the thymus in status lymphaticus is usually only a part of a general adenoid enlargement. It may be regarded as part of an abnormally sensitive reaction to foreign proteins, such as is generally met with in those whose vagus response is increased. The extreme vulnerability of persons suffering from such a condition is shown in their liability to sudden death from trivial causes. But this throws no light on any internal secretion formed by the gland, of which, indeed, there is no evidence.

The liver, as the most important metabolic workshop of the body, throws many substances into the blood stream, such as sugar from the stored glycogen, urea, unsaturated fats which it has prepared for combustion, antitoxins, and something which influences the coagulability of the blood, but none of these can be regarded as hormones in the sense here defined. The spleen, although the largest of the ductless glands, appears to form no internal secretion. Hence it is that diseases of the spleen have so few symptoms apart from the enlargement of the organ, unless of such a character as to set up splenic anaemia. And it would appear that not one but several diseases of the spleen are capable of producing this destructive change in the blood.

Classification of Endocrine Glands.

The endocrine glands would therefore appear to fall into two main groups: (1) the adrenals with other chromaffin cells, the pituitary, thyroid and interstitial cells of the reproductive glands; (2) the mucosa of certain parts of the alimentary tract, the pancreas, and the parathyroids. The first group interact chiefly with the sympathetic and are accelerators, the latter with the parasympathetic, and are retarders. The former display kinetic energy, the latter store potential energy.

General Principles of Internal Secretion.

To get a general conception of the principles of internal secretion it is necessary to start from the premise that the development of each individual recapitulates, briefly and with modifications, the history of the race. And it is helpful to remember that while life has been present on the earth for millions of years, man did not appear more than a comparatively few thousand years ago. Every time an individual repeats the history of the race he does it more easily as the result of practice. Thus it happens that the fetus in nine short months of pre-natal life recapitulates the history of millions of years, while his longer infantile life only repeats the history of a few thousand years. That even an adult may speedily revert to the instincts and habits of a cave man the war has abundantly shown. Later veneers of civilization are easily cast aside.

Now the most primitive forms of life multiplied by simple fission. The unfertilized ovum is the nearest approach to the primordial cell that we know. Like the primordial cell it starts to divide by simple fission, forming two polar bodies. Millions of years ago simple fission was found inadequate for a complex animal, yet every ovum starts on this course till it is abruptly brought up by the consequent exhaustion of its powers of growth. But when fertilization has remade its nuclear network a tremendous impetus is given to growth. When growth is expressed as a fractional increase of body weight it will be found that its curve continuously diminishes from fertilization onwards. In other words, the impetus thus derived gradually wears itself out. A new life may be compared to a projectile travelling with a constantly diminishing acceleration. But unlike an ordinary projectile it is supplied by intrinsic regulators, capable of increasing or diminishing its velocity. These regulators are the two groups of endocrine glands and their associated nervous mechanisms. In the first few years of life the original impetus is so enormous that a brake is needed—which seems to act through the thymus. By seven years of age this brake is needed no longer, and should it continue to be applied from any cause, infantile features persist. With the aid particularly of the thyroid and pituitary, active growth continues until puberty gives another twist to the mechanism from the active development of another set of glands—a new position of equilibrium has to be found. With adult years a part of the energy is diverted from growth of the individual to providing a supply for the next generation; and again the regulators have to provide a new adjustment. Another jolt—often a violent one—is given to the mechanism by the climacteric, and yet a new position of equilibrium has to be acquired. From this point on, the dying down of the initial velocity is marked; the accelerating thyroid seems to die down before the sedative parathyroid—calcium fixation goes on unchecked, therefore; the intercostal cartilages grow rigid, the chest

becomes emphysematous, greatly diminishing the bodily activities by restricting respiratory exchange, the arteries become calcareous, diminishing the blood flow to every part of the body, while childish and even infantile characters may reappear as the organism slows down for the terminus.

This may be considered the normal course of events. That everybody should ultimately only die from senile decay is the goal of medicine. But apart from violent death, the regulators may become worn out, with consequent great increase of friction to the mechanism. Invasion by bacteria and their toxins may prematurely exhaust the endocrine glands, or endogenous poisons may produce a similar effect; metabolism becomes balanced on a razor edge, the sport of every wind that blows. Nervous shocks and strains excite a reaction of the sympathetic nervous system and, through it, of its associated chain of endocrine glands, with consequent exhaustion of them. And these two sources of endocrine exhaustion may interact, so that a psychic conflict may be produced because the body cannot adjust itself to a difficult environment largely because of an endocrine deficiency. Thus the two newest methods in medicine, psychotherapy and endocrinology become not opposed, but different aspects of the same problem. Or a body may start out ill equipped with a supply of endocrines, so that its growth curve suffers a steep descent, as in that rare condition progeria, where senility comes on in childhood and the patient dies "an enfeebled old dotard of five." In dementia praecox we probably have a mixture of such causes at work—an atavistic reversion in bodily structure, as shown in the monkey-like hands; a multiple endocrine deficiency, with a consequent persistence of the infantile outlook, hence a total failure of adjustment to the conditions of adult life; the mind defensively withdraws itself from its environment, and hence undergoes rapid involution.

But you will forgive me if I do not go further into conditions of pluriglandular disease. Fascinating though the subject is, it is still in a speculative stage, and it is essential to keep clear ideas on the simpler and better known phases. Suffice it to say that I look upon diabetes as probably of pluriglandular origin initiated through the sympathetic, which stimulates into activity those endocrine glands which mobilize the blood sugar, while inhibiting the pancreas, the one which leads to its assimilation.[2] Hence the gravity of glycosuria in early life when the accelerator group of endocrines are already called into full play, compared with its comparative mildness in later life when their activity is becoming a thing of the past. Hence also, in all probability, the frequently sterilizing effect of diabetes.

Organotherapy.

Before we can apply organotherapy rationally we must have some clear ideas as to the chemistry of the hormones that the endocrine glands produce. Hormones appear to be bodies of comparatively small molecular weight, which, unlike ferments, are not destroyed by simple heating although they are rapidly destroyed by oxidizing agents. They do not appear in any of the excretions because they are destroyed in the tissues they excite. Unlike antibodies, they belong to the permanent and not the acquired defences of the body. Although hormones probably have a relatively simple chemical constitution, only those of the thyroid and adrenals have been isolated. It has been suggested that an application of the methods employed for the separation of the active principles of plants would yield valuable results. Recent work by Kendall goes to show that the active principle of thyroid secretion is an iodine compound of indol. Now, indol is a decomposition product of tryptophan, a constituent of the protein molecule. Hopkins, in studying the effect of depriving animals of certain protein fractions, found that although tryptophan only constitutes 1½ per cent. of casein, its removal had a profound effect in checking growth, far more so than removing certain other fractions, which constituted nearly 30 per cent. of the molecule. He concluded that it is possible, and even likely, that tryptophan may be required for something other than structural purposes—that its indol nucleus, for instance, ministers to some dynamic function in the body. Now, thyroid secretion has such a dynamic function. The formation of the indol nucleus appears to be beyond the powers of the body; it requires it ready-made. It is interesting to recall that indol is ordinarily split off by the action of intestinal bacteria; this raises the speculation as to whether we do not depend on these parasites, particularly *B. coli*, for the first step in the preparation of one of the most active and important hormones for us, a hormone that is essential to adult development—whether, in fact, we have not here another example of the interdependence of animal and vegetable life. Now, during the nursling period the child gets thyroid secretion from its mother's milk, and during that period *B. coli* are hardly present in its bowel. Herter has attributed one form of infantilism to persistence of the intestinal flora of the nursling period. We know that the suckling child has not a very active pancreatic secretion. Tryptophan is split off from protein by the pancreatic juice, and indol from tryptophan by bacteria. Normally, then, *B. coli* enter the bowel just about the time pancreatic juice becomes more active, and the child has to manufacture its own thyroid secretion. In this connexion I might refer also to McCarrison's observations on intestinal intoxication as a cause of thyroid enlargement, which on the hypothesis here suggested would be an example of a pathological exaggeration of a physiological process.

Tyrosin, another protein fraction, is chemically related to adrenalin, and it is tempting to relate the formation of adrenalin to the tyrosin of the food. A former house-physician of mine, Dr. Everard Williams, has made some interesting observations on the occurrence of pellagra in prisoners of war. Pellagra is accompanied by changes in the sympathetic nervous system, and he has suggested that a diet poor in tyrosin and tryptophan is specially liable to induce pellagra. Since the sympathetic nervous system depends on adrenalin for its activity, this association is of interest. But on the other hand the body is capable of making its own tyrosin, and Hopkins has shown that deprivation of tyrosin hardly influences growth. Moreover, in that congenital error of metabolism known as alkaptonuria, the body is unable to utilize the tyrosin of the food, yet no sympathetic symptoms appear. The evidence is, therefore, against the formation of adrenalin from the tyrosin of the food. Hormone therapy won its first triumphs with thyroid extract. There are two reasons for this: in the first place, the thyroid contains a larger reserve of secretion than any of the other endocrine glands; and in the second, its secretion was originally poured by the thyro-glossal duct into the alimentary tract, hence it can be readily absorbed from it. It is probably for the same reason that the parathyroid can be similarly absorbed; at any rate, quite small doses, such as $\frac{1}{10}$ grain, seem to produce a marked effect. That formerly thyroid was given in much too large doses is a clinical observation we owe to Leonard Williams. I always start with only ½ grain twice a day, and seldom exceed 2 grains three times a day. In this way all its therapeutical effects can be obtained without exciting such toxic effects as tachycardia, tremors, and glycosuria. Its administration is indicated in all such minor degrees of hypothyroidism as I have described. Incidentally I might add that among the cases referred to me for an opinion I find that failures to recognize these minor degrees of thyroid insufficiency are still quite common.

One has no such confidence that adrenalin will be assimilated from the alimentary tract. Its administration by that route should therefore be restricted to cases where we wish to obtain its astringent effect on the gastric vessels as in haematemesis, or its inhibitory effects on peristalsis as in vomiting. Otherwise it must be used topically on mucous membranes or by injection. In this latter instance its effect is so sudden and so transient that its usefulness is limited. But in asthma and to restrict the spread of a local anaesthetic it is most useful. Its use in vasomotor paralysis has been largely replaced by pituitrin. Pituitrin, again, is probably scarcely assimilated from the alimentary tract, but when injected in vasomotor and intestinal paralysis is very helpful. Given thus its influence on diabetes insipidus is marked. Of its effect in labour I have no experience. The combined injection of adrenalin and pituitrin is sometimes very successful in asthma.

When we come to the other endocrine glands, our ignorance as to their active principles is a great hindrance

to intelligent therapy. That they must be used with care is well illustrated by the disastrous effects of experimental injections of secretin into animals—the resulting liberation of active pancreatic juice into a fasting intestine produced extensive self-digestion of its walls. Administration by the mouth is freer from risk, but possibly because of the uncertainty of absorption. But I do not wish to discourage the clinical use of such extracts, either singly or in combination, if it is made cautiously, and with due consideration of physiological principles. Empiricism has often won success where rational therapy has lagged behind, but I do deprecate the giving of extracts of glands that are known to have no internal secretion, such as the spleen and kidney.

If I have been able to give any guide to the principles which underlie organotherapy my object is achieved. That I have only been able to give a rough outline of those principles is inevitable, for the variety of endocrine activity is only exceeded by the infinite variety of life itself.

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[2] Loc. cit.

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SECTION OF NEUROLOGY AND PSYCHIATRY.

HENRY HEAD, M.D., F.R.S., President.

DISCUSSION ON EARLY SYMPTOMS AND SIGNS OF NERVOUS DISEASE AND THEIR INTERPRETATION.

OPENING PAPER
BY
HENRY HEAD, M.D., F.R.S.

WHEN attempting to elicit the history from a patient it is a common experience to find that some early but significant symptom has been entirely omitted. For this he offers the excuse, "It was so slight and passed away so quickly that I did not think anything of it"; and this belief in the unimportance of slight transitory manifestations is not confined to the patient, but is frequently shared by his medical attendant.

Such symptoms as double vision or a passing weakness of one limb may have been of supreme diagnostic importance in the light of subsequent events. But the experience and outlook of the family physician leads him of necessity to a different attitude towards early signs and symptoms from that of the specialist. The former has seen so many apparently serious conditions pass away that he tends to become sceptical with regard to minor manifestations, which so often cause no permanent disability. On the other hand, the knowledge of the consultant leads him confidently to anticipate the worst. In many instances he is not told whether his Cassandra-like prophecies have been fulfilled or falsified, and he rarely knows if the signs and symptoms on which he laid such stress turned out to be important or not.

This sitting of the Section of Neurology and Psychiatry has been devoted to the early signs and symptoms of nervous diseases, in the hope that the combined experience of the meeting may show which of them are of diagnostic and prognostic value. Amongst nervous diseases we do not intend to include the results of gross organic destruction only; we hope that the discussion will touch on the early symptoms of those morbid conditions usually classified as the neuropsychoses. For in the early stages it is often extremely difficult to determine whether the symptoms are due to a primary psychosis or to some structural change in the central nervous system. Thus cerebral syphilis may show itself first in a change of character or produce a condition which exactly simulates paranoia or dementia praecox.

Early symptoms frequently produce so little discomfort that a medical man is not consulted. Nearly all histories of illness taken from the labouring population start from the moment when the patient was forced to leave his work. Amongst the well-to-do the story usually begins with the first visit of the doctor. But such symptoms as precipitate micturition or slight changes in articulation, though trivial manifestations, may be of profound diagnostic importance. How many patients in the early stage of a spinal lesion have been thought to be hysterical because the first signs of defective control over micturition were neglected! Women rarely confess to this symptom; but not uncommonly its occurrence can be elicited by asking "How long is it since you were able to go out to tea?" For a woman who suffers in this way cannot face the strain of sitting for some hours under the influence of a diuretic.

Early signs are not only neglected because they seem trivial, but the physician frequently omits to establish their true nature during the short period of their existence. For example, a patient suffering from a cerebral tumour may have had a slight convulsive attack, followed by transitory "weakness" of one hand. Careful examination would have shown that this was a definite loss of motor power accompanied by some changes in the reflexes, or that the defect was a disturbance of sensation of the cortical type. A few days later the hand may have recovered its normal functions, and the opportunity has been lost for discovering the true nature of this post-convulsive disorder.

On the other hand, any morbid condition with an acute or fulminating onset is liable to be accompanied by signs and symptoms far in excess of the structural changes on which it is based. Thus, embolism of one of the minute arteries supplying the internal capsule may produce severe paralysis of the opposite half of the body; this sometimes clears away so completely that little evidence of the stroke remains. The shock to the central nervous system was so profound that the functional activity of parts outside the area supplied by the blocked artery suffered severely.

Any sudden injury to the brain produces widely radiating effects within the structures of the nervous system. Sometimes a blow on the head or a cerebral wound may be followed by loss of motion and sensation so severe that it is difficult to believe the mid-brain has not been affected. The whole of one half of the body may be in a condition of flaccid paralysis, insensitive to touch, pain, heat and cold; and yet the rapidity with which this loss of function disappears shows that it was not due to gross structural changes in the lower centres.

All aspects of cerebral activity are liable to undergo similar profound and extensive changes in consequence of trauma; these are particularly evident in the phenomena which follow cerebral concussion. At first the patient lies in flaccid unconsciousness, with shallow breathing, scarcely able to swallow fluid placed in his mouth. Then the lower centres recover from the shock and he becomes restless and even violent. As consciousness returns he grows more amenable to control, and his conduct is no longer dominated by the activity of his lower functional levels; but his memory and power of concentrated attention long remain defective.

The widespread distribution and severity of these early shock-effects tend to lead to a mistaken idea of the permanent extent of the lesion. After a cerebral haemorrhage producing a complete hemiplegia, the patient's friends are frequently told that he will never walk again. But, provided he can recognize the posture of the limb with his eyes closed, he usually recovers sufficient power to walk with the help of a stick. The leg always tends to recover to a greater amount than the arm, unless the structures which govern its motor and sensory functions are more directly affected than any other centres.

Frequently the significance of some symptom or sign is not appreciated owing to the adoption of a misleading general diagnosis. The early pains of spinal syphilis are thought to be due to "fibrositis." Disseminated sclerosis not unusually begins with short attacks of what is called "influenza"; the temperature is little if at all raised, but

the patient feels ill, with a general sense of powerlessness. This may be accompanied by transitory loss of vision, diplopia, or incontinence of urine. But the diagnosis of "influenza" has misled the physician with regard to the condition with which he has to deal.

Sometimes the history, though accurate in every particular, may be almost perversely misleading. A cervical rib is a congenital abnormality; and yet the symptoms and signs it produces may become manifest for the first time at almost any age. One of my patients suffered from no pain or loss of power in her hand until after her marriage, with the natural inference that her trouble was due to syphilitic infection. But like most women of the hospital class, it was not until after marriage that she was forced to scrub the floor, to carry about a heavy baby, and habitually to perform other work necessitating continuous strain on the arms. Another patient, the son of a rich man, began to experience discomfort at about sixteen years of age, when he exchanged his quiet pony for a pulling horse. This was thought to be the hysteria of puberty. Again, a master baker, who consulted me during the war, noticed pain and wasting in his hand at the age of fifty. All his workmen had been called up, and for the first time in his life he was compelled, himself, to carry on the strenuous and exacting work of his bakehouse. This patient was thought to be suffering from "neuritis" brought on by the air-raids.

"*Functional*" *and* "*Organic*."

All disease of the nervous system manifests itself in loss of function. Not only does the patient complain of some lack of functional capacity, but the physician has to arrange his tests to elicit such defects. Let me therefore protest against the perverted use of the word "functional." Many employ it as a euphemism for "hysterical," and the subtle effect of this false use of the word sooner or later corrupts their diagnostic thinking. Some condition for which they cannot determine a cause is labelled "functional," and treatment is carried out on the negligent and irrational lines usually considered suitable for hysteria.

An even more insidious danger in the careless use of this word arises from an antithesis in the physician's mind between "functional" and "organic." As far as the nervous system is concerned, morbid conditions can express themselves solely through disturbance of function. The grossest destruction is evident in some paralysis or overaction only. But experience has associated certain signs with destruction of certain parts of the nervous system, and these we speak of by prolepsis as "organic" signs. They are, however, in reality, evidence of disturbed function, and not of structural changes. When the great toe moves upwards and the inner hamstrings contract on scratching the sole of the foot, we can assume that the normal activity of the pyramidal tract is disturbed; but this sign is no evidence of the existence of organic changes. It may be an early indication of structural disease or, on the other hand, a purely transitory disorder of function, as, for example, after an epileptic convulsion. In both cases the reaction is identical, but its prognostic significance is fundamentally different.

This tendency to jump a step in logical diagnosis is responsible for an even more disastrous error. Pain is not always a pathological state, it may be a physiological response to noxious stimuli, and a necessary preliminary to a defensive reaction. But the physician tends to evaluate the sufferings of his patient solely by the nature and intensity of the external stimulus; should the destruction of tissue be severe, he accepts the pain as "organic" in origin. If, however, the "cause" is in his opinion insufficient, it is said to be "functional." He does not consider that there are always two factors in the production of painful sensations, either of which may vary independently. The peripheral mechanism can be reduced to such a condition that it responds excessively to the painful aspect of a stimulus of constant intensity; this occurs during recovery in many cases of injury to the principal nerve trunks. On the other hand the central receptive centres, concerned with painful impulses, may be no longer under complete control of the higher functional levels, and therefore react with abnormal vehemence. What is known as "thalamic over-reaction" is a good example of excessive pain produced in this manner, and yet in the past it was frequently thought to be "functional." All pain is nothing but a change in function, and to divide painful manifestations into "organic" and "functional" is not only a solecism, but is an impediment to clear diagnostic thinking.

Some Early Indications of Nervous Disease.

One of the earliest changes associated with disease of the central nervous system may be an alteration in the *personality* of the patient. Cerebro-spinal syphilis is particularly associated with some change in character. A skilled workman ceases to be worth his high wages; the steward of a golf course failed because he could not remember the many little details necessary to the success of his day's work, and a fireman on the railway lost his job because he used to fall asleep during his hours of duty. Many instances occurred during the war, where, for example, an able non-commissioned officer became obviously incompetent, before any gross signs could be discovered of the underlying syphilitic infection of the central nervous system from which he suffered.

Frontal tumours are notoriously liable to change the personality of the patient. A modest and retiring Nonconformist minister, who was in hospital for observation, cracked foolish jokes with the nurses, and insisted on accompanying the matron through the wards, clad in dressing-gown and slippers.

The disproportionate cheeriness, associated in so many instances with disseminated sclerosis, is less often recognized and escapes notice because of the insidiousness of the change. It is a great asset in combating the progressive loss of function, and care should be taken to avoid depressing the spirits of the patient, even though they may seem to be excessive.

Memory may be profoundly affected; and one of the most interesting diagnostic problems presented by the injuries of war, has been the distinction between the amnesia of cerebral concussion and that due to mental dissociation. The first is a true lack of memory: the mind fails to register events following the trauma, and even those which preceded it by some hours may be wiped out. But with a hysterical loss of memory the experiences which appear to have been forgotten are still in existence and can be recalled, in many instances, by suitable treatment. In this form the retrograde amnesia usually extends over a much longer period than in the case of a concussion; a soldier may not be able to recall his service in France, and the loss of memory may even extend back into boyhood.

Sleep is disturbed with the onset of many nervous affections. Sometimes, with cerebro-spinal syphilis, the patient falls asleep on the most inopportune occasions; more often, however, he tends to become sleepless. Insomnia is a characteristic manifestation of that emotional irritability usually mistaken for "neurasthenia," but due to syphilitic infection. At night the condition becomes a slight delirium and the patient may fall into a state resembling a mild confusional psychosis. Such nocturnal conditions are commoner amongst sane persons suffering from syphilis of the central nervous system than is usually supposed.

A peculiar tendency to lethargy and sleepiness in the daytime may be one of the symptoms of pituitary affection. The patient breaks off his conversation to yawn in your face and falls asleep on the most unexpected occasions.

Changes in *articulation* are amongst the earliest symptoms of many nervous diseases, but it is remarkable how often they pass unnoticed by those in close contact with the patient. Fortunately they become more evident under the emotional strain of an interview with the physician. I remember a woman, in an asylum to which I was attached, who appeared to be perfectly normal. The short attack of excitement for which she had been certified had passed away, and she was about to be sent home. But the bread served to the ward had been badly baked, and when she stepped forward to make her complaint to the superintendent, her articulation was for the first time profoundly affected. I need scarcely mention the changes in speech which not uncommonly appear among the early signs of paralysis agitans or disseminated sclerosis.

Headache is sometimes treated as if all pains in the head were of similar diagnostic import. But although we are far from comprehending the significance of the various forms of headache, we can class them roughly according to certain broad rules. First, it is important to determine

whether the pain is referred from some affected organ in the head, thorax or abdomen. For it must not be forgotten that morbid states of the thoracic or abdominal viscera can cause localized pain not only over various parts of the trunk, but also in the head. Such referred pain is usually associated with areas of superficial tenderness, which mark out its distribution and give the key to its causation.

During the war we have had many opportunities of becoming familiar with the headache due to contusion or concussion. It is paroxysmal, intense, and the patient complains that he feels as if his head was bursting; coughing, sneezing, stooping, exertion, or anything that increases intracranial tension aggravates the pain. It is diminished after rest, and is usually absent on waking in the morning; but it not infrequently appears by the time the patient has finished his dressing and has begun to move about. Sometimes, when extremely severe, it can be relieved by lumbar puncture, even though the fluid withdrawn from the spine does not appear to be under greatly increased pressure.

From this the so-called "neurasthenic" headache can be diagnosed without difficulty. It is present in the morning on waking, and passes off during the day; but it is liable to return at night, and is evoked by anything that causes fatigue, bodily or intellectual. When dealing with airmen, invalided on account of war-strain or accident, we found that those who suffered from pure concussion were unable to visit the theatre with pleasure in the afternoon on account of headache; but those in whom it was the result of nervous exhaustion enjoyed the performance, although it might be followed by headache on their return.

All clinicians have laid stress on the frequency with which headache appears amongst the first symptoms of syphilis of the central nervous system, and its tendency to occur at night is well known. It is usually severe, paroxysmal, and lasts for several hours. The whole scalp may become tender, so that the patient cannot wear a hard hat. Occasionally it is accompanied by nausea which may culminate in vomiting. This leads to considerable difficulty in differential diagnosis from cerebral tumour if the serum gives a positive and the cerebro-spinal fluid a negative Wassermann reaction.

What constitutes a "Disease" of the Nervous System?

I must leave to other members of this Section the detailed consideration of such signs as abnormal reflexes, disturbances of motion or sensation, and affections of the cranial nerves. But before closing this address I should like to say a few words as to what constitutes a "disease" of the nervous system. Many physicians seem to consider that morbid manifestations can be divided into definite "diseases," and discuss their distinctive characters with the solemnity of a botanist of the old school debating the limits of species. They assume that when they have given a name to some morbid condition a diagnosis has been made. This fallacy is apparent in all official nomenclature of disease.

Diagnosis to be complete must be a threefold process. First, by careful examination, we elucidate the nature and extent of the loss of function which constitutes the morbid condition. Next, we translate these symptoms and signs into terms of some local affection; if there is reason to believe that they are due to organic destruction, we seek to determine the situation of such gross changes. Finally, if possible, we must discover the nature of the underlying pathological process. We must not be satisfied at one time with such a name as "locomotor ataxy," implying a loss of function, and at another with "tabes dorsalis," which signifies, in its technical sense, wasting of the posterior columns of the spinal cord.

Let us take as an example of the diagnostic methods I am advocating the case of a patient who is both spastic and ataxic. He walks stiffly, his knee-jerks are exaggerated, ankle-clonus may be present, and the plantar reflexes give an upward response. His ataxy is shown not only in his gait, but by his tendency to fall when the eyes are closed. He has difficulty in recognizing the position of his feet, and examination with the tuning-fork shows that the power of appreciating vibration is defective.

These morbid conditions point to interference with the functions of the pyramidal tracts and of the long extrinsic fibres of the posterior columns of the spinal cord. The patient may be said to suffer from a "postero-lateral" affection; but this is not a diagnosis. It is simply the translation into local terms of the disorders of function revealed by examination. In order to discover the nature of these local manifestations we must carefully collate them with other signs and symptoms discovered elsewhere.

Thus, the patient who suffers from postero-lateral disease may complain of a sensation as if a band were tied round his body, or show an area of over-reaction to pin-prick, marking out the distribution of one or more posterior roots. Should there be no abnormal signs above this level, the spasticity and ataxy of the lower extremities are probably due to pressure on the cord, either from a new growth or from some affection of the meninges. On the other hand, the presence of nystagmus, temporary loss of vision or diplopia, point to some more widely disseminated lesion, however local the disease of the spinal cord may seem to be.

Postero-lateral destruction is a common manifestation of cerebro-spinal syphilis; but here some want of reaction of the pupils or other nerve signs and symptoms in the territory of the cranial nerves are usually present to help the diagnosis. This is clinched by the result of the Wassermann reaction.

In some instances where the patient is both spastic and ataxic, the nature of the destruction in the lateral and posterior columns may be revealed by morbid changes outside the nervous system. Thus, in "subacute combined sclerosis," the key to the destructive process may be given by blood changes resembling those seen in progressive anaemia.

In all these examples the functional disorders could be translated into terms of organic destruction; but in cerebro-spinal syphilis alone was the diagnosis of the disease complete. For in every other case we were ignorant of the pathological process responsible for the anatomical changes.*

All such names as "tabes dorsalis" and "general paralysis" should be avoided or employed solely as a part of the full diagnosis. They are considered by some as "diseases"; but they are nothing but shorthand titles for groups of signs and symptoms evoked by the action of the *Spirochaeta pallida* on different structures of the central nervous system. They do not tell us whether the morbid process affects mainly the meninges and vessels and is amenable to treatment, or whether it is acting on the essential nervous structures, shut off from all contact with metallic compounds circulating in the blood stream. Such terms are consequently insufficient for diagnosis, treatment, and prognosis.

An organic disease of the nervous system is produced by the action of some pathological process upon one or more of the constituent elements of that complex structure the central nervous system. This is followed by certain anatomical changes in vessels, meninges, nerve-fibres or cells; and these in turn cause certain disorders of function. All these aspects of the "disease" must be specified as far as possible, if the diagnosis is to be of any value as a means of scientific thought or practical treatment.

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DR. COLLIER referred to the diagnosis of asthenopic diplopia—a condition elicited only on examination and on lateral deviation of the eyes. The diagnosis of migrainous ophthalmoplegia was touched upon. Ophthalmoplegia occurs, he said, only in long-standing cases of migraine. The onset is sudden, following a headache of greater severity than usual. The weakness of the ocular muscles may last for years, lessening between the attacks and being exacerbated by each succeeding attack. With regard to ophthalmoplegia from inflammatory lesions of the orbit, the sixth, fourth, third, and the first and second divisions of the fifth nerves are affected. The

* The necessity for expressing a diagnosis in a threefold terminology is even better exemplified by cardiac disease. For example, it is useless to say only that the patient suffers from "mitral stenosis." The full diagnosis should be expressed somewhat as follows: "Auricular fibrillation," the disorder of function; "stenosis of the mitral valve," the organic destruction; and "acute rheumatism," the pathological process responsible for the condition of the heart.

condition is not due to syphilis nor to septic conditions of the sinuses. It invariably recovers. This form of ophthalmoplegia is comparable to Bell's paralysis of the facial nerve. Any cranial nerve may be affected in a similar manner. Ophthalmoplegia due to congenital absence of an oculo-motor nerve may be diagnosed by the absence of diplopia and by the perfect vision in the erring eye.

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IN dealing with the early signs of nervous disease we are too much dominated by clinical signs and syndromes to which some name is attached—as Romberg's sign, Babinski's sign, or even the knee-jerk—while we neglect to observe and give their proper significance to minor disturbances of function and slight deviations from the normal which can be best seen in ordinary actions and movements. In the early stages of paralysis agitans, for instance, where there may be no characteristic tremor or rigidity, the absence of changes in the reflexes frequently leads to the diagnosis of hysteria, while observation of the slowness and awkwardness of movements and the uselessness of the limbs, which is not merely subjective, would make the recognition of the disease easy. Similarly, the apparently normal reflexes and the absence of such obvious symptoms as gross loss of power or rigidity in cerebellar disease, and in local lesions that produce slight sensory disturbances, often lead to these conditions being regarded as hysterical.

In the second place the ordinary clinical signs on which diagnosis is usually based are regarded as too absolute. It is, for example, frequently said that Babinski's sign is absent if all the reflex movements that it includes are not present, though the reflex is obviously abnormal; the essential point is to decide whether the reflex is normal or not, and if not normal, whether it has a pathological significance. Similarly, the knee-jerk is frequently described as increased, exaggerated, or brisk, which it may be in either organic or neurotic diseases, while the type of the jerk, which is of great pathological significance, is generally neglected.

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As Dr. Head has emphasized, disease of the nervous system manifests itself by disorder of function. In addition to those disorders of function arising from discoverable, or, as it is called, "organic" disease, there is a large class of disorders of function—the psychoneuroses—that have no known structural pathology. In the majority of instances and at some stage of their history clinical investigation enables us to differentiate the forms of disorder belonging to these two classes. The so-called "organic" signs upon which largely, though not entirely, we base our diagnosis of organic disease of the nervous system are, it is true, only indications of disturbed function and not necessarily of structural alterations, but their value consists in the fact that they are expressions of disordered function in known physiological centres or paths, of whose normal modes of activity we have gained a more or less comprehensive knowledge—in other words, their occurrence and form are governed by well established physiological laws.

On the other hand, the physical signs of hysterical defects of function show no such recognizable physiological foundation. In the matter of physical signs every hysteric is practically a law unto himself, and the defects we find depend primarily upon the patient's own conception of the normal functions of his body. However, with a few notable exceptions there are very few physical signs that by themselves are capable of but a single interpretation, and are sufficient to differentiate the two types of disorder of function mentioned. Unfortunately, also, we know little or nothing of the initial stages of dissolution of function in the various physiological levels of the nervous system. To take a relatively simple case, what are the earliest objective manifestations of impaired activity of the pyramidal system of neurones? At what stage do the commonly accepted motor and reflex alterations appear? Are any of them present when the patient himself first becomes aware of a dawning disability, and what are the initial manifestations of this disability? I do not think that the terms of the problem before us can be too often or too variously stated, for with this as with most of the problems that confront us, half the difficulty of their solution vanishes once they have been clearly formulated.

Hughlings Jackson pointed out that disease of the nervous system may be regarded as a progressive dissolution of its functions in which the highest and most recently acquired activities (in the individual and in the species) are the most vulnerable and the first to be lost. Therefore, when we consider the refinements of motor co-ordination that are initiated and carried out through the activity of the cortico-spinal efferent path, it is clear that our ordinary clinical tests can scarcely be expected to discover defects until these are already gross and very evident to the patient himself. The first signs of impairment of some skilled acquired movement can be evident to the patient alone, and with the comparative crudity of our methods it is not surprising that we know so little, but rather that we have found out so much. In a case of slow-growing endothelioma overlying the left frontal and Rolandic cortex, clinical examination in respect of the arm and hand was negative, yet the patient had long been aware that his handwriting had deteriorated in quality; while a skilled amateur musician, who had apparently made a complete recovery from a small cortical thrombosis, found nothing to complain of in his left arm except that his fingers had lost their old cunning on the strings of his 'cello. Such slight disorders of co-ordination can be brought to our notice only by the patient himself, and unless he has sufficient intelligence to describe them accurately, and the clinician the judgement to assess their value and significance, they must always be liable to misinterpretation.

In the case of peripheral nerve disease I was fortunate in being able to investigate the initial subjective and objective manifestations of polyneuritis in a series of cases of diphtheria, and in a few of chronic alcoholic excess. In many instances the patient was aware of ready fatigue of the legs, of aching in the calf muscles on exertion, and of painful cramps in these muscles during the night, at a stage when examination revealed only tenderness of these muscles on pressure. As the disease developed, the tendon jerks underwent a preliminary and transient exaltation before diminishing in facility and finally disappearing. The ankle-jerk was the first to show these changes, and the earliest to disappear. In slowly developing cases these subjective manifestations may precede by some weeks the disappearance of the tendon jerks, though in diphtheria the evolution of polyneuritis is more rapid. As far as I have been able to discover, the minimal signs of an injury of the internal popliteal division of the sciatic nerve from a gunshot wound is a diminished ankle-jerk and pain in walking from tenderness of the calf muscles on stretching when the foot is dorsiflexed. Certainly these symptoms precede the appearance of paresis or sensory loss.

These few examples, which doubtless most clinicians could parallel, seem to me to indicate the necessity of ever-increasing carefulness of clinical examination and of a much closer attention to apparently trivial symptoms if we are to achieve an early and accurate diagnosis, and to differentiate organic from hysterical elements in what at their onset commonly strike us as trifling ailments with little or no physical basis. In this connexion it seems justifiable to refer to a recently manifested and unfortunate tendency to deprecate close clinical investigation, on the grounds that it is as apt to suggest symptoms to the patient as to reveal those already present. For example, it has been stated that areas of referred tenderness, both superficial and deep, in visceral disease are merely hysterical phenomena implanted in abnormally suggestible individuals by clinical examination, and that, having endowed his patient with them, the observer is in turn deluded by these creations of his own mind into believing that his patient has some organic lesion.

Perhaps the authors of this bogey do well to distrust their own clinical observations, but that the observer of ordinary judgement should be expected to pursue his labours in perpetual dread of making a hysteric of his patient and a dupe of himself is scarcely a serious proposition. Nor is its corollary at all sound: namely, that

the clinician should be encouraged to substitute psychotherapy as a diagnostic method for the safer paths of careful clinical analysis of the early signs and symptoms of disease.

THEODORE THOMPSON, M.D., F.R.C.P.,
Physician to the London Hospital.

NERVOUS exhaustion, or neurasthenia, may be an early sign of defect in the nutrition of the nervous system. The modern view that nervous exhaustion is always a result of psychical disturbances is undoubtedly incorrect. In many cases mental causes are dominant, and such cases are to be treated by psychic methods. But a very large number of cases of neurasthenia are the result of a defect in nutrition in the nervous system. Such disorders in nutrition may result from disturbance in the ductless glands, such as myxoedema. During the past year I have had four cases referred to me as neurasthenia in whom I recognized the early symptoms of myxoedema, and whose nervous exhaustion was at once cured by thyroid medication. Intestinal toxaemia is another cause of a nutritional defect in the nervous system which may give rise to nervous exhaustion. But gross vascular and inflammatory lesions of the nervous system may have as an early manifestation the usual symptoms of nervous exhaustion, as in a case that has recently come under my notice. In this case the early signs of gross vascular disease, so severe as to result in death, were manifested as nervous exhaustion. Again, in syphilitic disease of the nervous system the earliest symptoms may be those of nervous exhaustion, and it is only by careful examination of the blood and cerebro-spinal fluid that the disturbance in the nutrition of the nervous system can be detected.

Sir FREDERICK MOTT, M.D., F.R.S.,
Consulting Physician, Charing Cross Hospital, London.

SIR FREDERICK MOTT called attention to the importance of subjective sensory symptoms in the form of paraesthesia and pains due to root irritation in vertebral disease, tumours, and especially syphilitic meningitis. For some time these sensory symptoms might be the sole evidence of disease for which the patient comes to the doctor. He cited a case he had recently seen of syphilitic meningo-myelitis in which disseminated sclerosis had been diagnosed. For some days before the onset of paraplegia this patient had had numbness, pins-and-needles, and pains of a root character. Had a Wassermann reaction of the blood and examination of the cerebro-spinal fluid been made the syphilitic nature of the disease would have been diagnosed, and if treatment had in consequence been employed the specific inflammation would have been prevented from spreading to the spinal cord, and a focal myelitis thereby averted. No treatment would repair the damage to the afferent and efferent tracts which connect the brain with the parts below the lesion. This patient, a soldier, would suffer with a permanent spastic paralysis in consequence of neglect of this obvious procedure.

He also called attention to a fact which had not been mentioned in relation to the knee-jerks—namely, its absence on one side and presence on the other may indicate tabo-paralysis. He had seen such cases, and he accounted for it by the fact that one cerebral hemisphere might be the seat of the disease to such a degree that at death the difference in the weight might be as much as 50 or 60 grams. The presence of the knee-jerk on the opposite side was due to the suspension of the inhibitory influence of the brain. This fact was noted by Hughlings Jackson in return of the knee-jerk in hemiplegia.

E. S. REYNOLDS, M.D., F.R.C.P.,
Professor of Clinical Medicine, University of Manchester.

A COMMUNICATION from Professor Reynolds of Manchester was read by Dr. E. D. Adrian.

The remarks referred not to any new facts but to signs and symptoms in the early stages of common nervous diseases which Professor Reynolds had found from experience to be either not sufficiently known or not sufficiently regarded.

Paralysis agitans sometimes starts with pain and stiffness of one arm, which almost exactly resemble those of a brachial neuritis, and can only be diagnosed from such a condition by noting the slow movements, the mask-like face, and the posture which may be present; for in these early stages tremor may be entirely absent.

General paralysis of the insane may start almost like a "bolt from the blue" by a general epileptic fit, with no previous history and with no other symptoms for many months, although a skilled observer may be able to detect a very slight alteration of speech, which, to my mind, is the most diagnostic single sign of general paralysis; or the fit may be of an apoplectic nature affecting one side, the paralysis recovering completely in a few days. Other cases of general paralysis start merely with depression and loss of energy, and especially with a lessened capacity for business, somewhat resembling what may occur in neurasthenia.

In *brain tumour* there may be in the early stage nothing to be found but headache, the persistence of which, even in the absence of any other sign (such as vomiting or optic neuritis), should always be regarded with suspicion. Other cases of brain tumour start with a sudden generalized epileptic attack, with no other sign or symptom perhaps for months, and a guarded prognosis should be given in such a case, especially in an adult with no history of a previous fit and no family history of epilepsy, and in whom cerebral arterio-sclerotic changes can be excluded.

In *tabes dorsalis* early and isolated symptoms which may simulate other conditions are notorious; the lightning pains simulating "rheumatism" or neuritis, or even angina pectoris or intercostal neuralgia; the gastric crises mimicking stomach disorders, or the nephralgic attacks, stone in the kidney. The routine examination of the knee-jerks in all patients is as important as the routine examination of the heart.

In early stages of *peripheral neuritis* such as occurs in alcoholic or arsenical poisoning the muscles may be exalted rather than depressed in function so that the reflexes are increased, and the great toe extended rather than drooping.

It is especially in *disseminated sclerosis* that symptoms are so diverse and so difficult to interpret as precursors of so serious an affection. I refer to the quite temporary blindness (often unilateral), to the temporary double vision, to the occasional sudden and momentary giving way of the leg causing the patient to fall without apparent cause; to the slight feeling of loss of sensation in patches and areas very difficult to find by objective examination; to sudden attacks of hemiplegia which may entirely recover in a few days or weeks. And I particularly wish to point out that rarely in this disease there may be severe pains, neuralgic in type and of root distribution, either in the trunk or limbs; and one must not forget how completely these early signs may disappear, only to recur perhaps years later. One is not surprised to find many of these cases diagnosed in the early stage as "hysteria."

In early stages of *myasthenia gravis* the temporary drooping of the lids, or the temporary double vision, may suggest hysteria, as I have known occur in three or four cases.

Finally, I wish to mention the frequency with which the symptoms caused by *secondary growths in the vertebrae* are mistaken in the early stage for other affections. For the symptoms may be quite indefinite, may merely consist of apparent bad temper, or the vague pains of a spinal neurasthenia, the patient all the time remaining fat and apparently fairly well in general health, and it may be months before the true nature of the affection is diagnosed. Such odd signs and symptoms occurring in women who have previously, even so long a time as five years before, had the breast removed, must always be looked upon with great suspicion.

TOM WILLIAMS, M.D.,
Washington, D.C., U.S.A.

DISEASE, even when serious, may fail to be manifested functionally. Familiar instances are chronic nephritis, latent tuberculosis, cerebro-spinal syphilis, cerebral neoplasm. On the contrary, function may be disturbed long before we are able by signs to affirm physical disease. As regards the nervous system the first diagnostic issue is the region or structure affected. The second is the etiology or nature of the disease processes; either of these may be the primary problem to the clinician. When function is disturbed without focal disease of the nervous system the issue lies between disturbance of material source elsewhere, and dynamic interference with integration. This latter may be reflex, but is far more frequently psychogenetic, even when the primitive stimulus may be a physical disturbance.

It is folly to attempt to nosologize before formulating these issues, mentally at least. Most of the errors have occurred on account of the premise that when one cannot find physical disease, hysteria is a justifiable diagnosis. Far more pragmatical, at least, is the postulate that when one cannot find a psychogenetic mechanism adequate to account for the symptoms, then physical disease must be present, even although we are unable to elicit its signs. This statement is particularly true regarding pain, disorders of sleep, asthenia, alterations of character, emotional disturbances.

Regarding paraesthesia, it is particularly frequent to be asked to examine a patient diagnosed as a case of hysteria in whom one finds the characteristic paraesthesiae which occur in the spinal disturbances of pernicious anaemia before there can be detected any change in the blood. To ascertain disturbance of the attitude sense is a speedy process to confirm the diagnosis. Many milder cases of encephalitis are labelled neurotic because of the marked changes in character, the slight agitation, the euphoria and insomnia, and the absence of lethargy and paralyses. Frequently in patients sent to me as neurasthenics do I find endocrine disorders, the inertia of hypothyroidism and its headaches. This is the form of headache which improves during the day in consequence of the stimulus of activity and food, which is so different from the genus of headache which is aggravated by activity, increased by food, or brought on by posture, the toxic or migrainous type, which conforms in many characters to the post-commotional headache, the asthenia of hypo-adrenia, the agitatedness, irascibility or fatiguability of mild hyperthyroidism, the indolence and vague feelings of dyspituitarism. Finally, neurotic behaviour is often the first sign of a state of mild toxicosis or of an infective focus.

Spontaneous disappearance of symptoms is far from a proof that they are hysterical; indeed it is a presumption that they are not, although asthenia consequent upon emotional disturbance is usually of short duration. Apparent success of psychotherapy is no criterion of hysteria; for symptoms of grave organic disease may be overpowered by suggestion for considerable periods. A glaring example is that of the woman who was kept subjectively well for a year, at the end of which a necropsy showed nephritis, myocardial deterioration and valvular disease, pulmonary tuberculosis, hepatic cirrhosis, ulcer of the stomach, and carcinoma of the uterus. Ecclesiastical healers have caused thousands of incapables to functionate for a time in the belief that they are healed. Hence the great danger of confiding patients, even when labelled functional or neurotic, to individuals, even though medical graduates, who are not highly skilled in neurological diagnosis. This is not to exaggerate the importance of the clinical sign; it can never lose its place, but its superiority as an objective fact should not permit the clinician to ignore the subjective facts set forth by the patient. To do so does not mean the uncritical acceptance at his valuation of every complaint. The complaint is often a mere interpretation, erroneous and fallacious. What we really seek is a subjective fact of the patient's experience, that is a mental fact, a percept, but none the less valid when we know how to shear it of the accretions to which it is so subject, more especially when it is being distorted by friends and perhaps doctors.

DISCUSSION.

Dr. Helen Boyle (Honorary Medical Officer, Lady Chichester Hospital for Women and Children, Hove) said that it was with some diffidence that she addressed the Section, being unable to label herself a neurologist any more than she would willingly label herself a psychiatrist. She would like to enter a protest against the separation of neurology and psychiatry, and to congratulate the Section on having happily combined both. It was many years since she first urged that the cerebro-spinal nervous system should be considered as a whole, and, as a matter of practice, it was impossible to separate mental and nervous cases. With regard to this interesting discussion, she laid additional stress on the importance of careful histories, as the President had already urged. With a small hospital of thirty-seven beds for early nervous and borderland patients in Brighton she got a number of patients sent down from the large London hospitals. She recalled one who was sent to her because, so her colleague said, the patient needed firmness and discipline for a hysterical condition, and he thought it was more desirable that this should be done by a woman than by himself. She could not walk, and he pointed out that this must be hysterical, for it had come on three months after the injury, which was caused by a fall on the back on a slippery pavement. Dr. Boyle got a general past history from the girl, which pointed very strongly against hysteria, and on inquiring when she had first found that she could not walk, she replied, "Three months after the accident." On further asking what she had been doing during that three months, Dr. Boyle found that the patient had never been allowed to put her feet to the ground. As a matter of fact the girl had a fracture of a vertebra. The war had done a great deal towards rousing interest and keenness in mental and nervous diseases, and this had been largely due to the fact that to a great extent nervous and mental cases had perforce to be treated together, and that the nervous system, including the brain, was taken as a whole. This important advantage should not now be lost.

Dr. Hildred Carlill (London) said that in these days, when we were saturated with the literature of hysteria, he thought some were apt to forget the elementary lessons in diagnosis. He had lately seen a case of myotonia congenita and one of paralysis agitans which had been considered hysterical. Bearing upon Dr. Head's remarks on the misuse of terms, he mentioned the case of a patient whose fits it was thought might be hysterical. The history pointed to epilepsy, and the doctor remarked about "ordinary epilepsy." Dr. Carlill informed him that such an expression was not permissible, and urged him to keep the optic discs under constant supervision. Four years later the patient was again examined, and hemiparesis and papilloedema were found. The cause was a cerebral glioma.

Dr. Astley Clarke mentioned conditions and practical difficulties met with in a "Home of Recovery for Functional Diseases" at Leicester Frith, and the varying conditions discovered from day to day in certain of the cases on the border line between "organic and functional." He protested against the present use by the medical profession and laity of the term "neurasthenia."

Dr. Henry Devine (Portsmouth) emphasized the fallacy of regarding too closely a given symptom-complex as the expression of a definite morbid entity. He referred to general paralysis, which was usually regarded as a definite disease with an invariable outcome in an unfavourable sense. From the clinical point of view cases diagnosed under this category, on the basis of certain mental symptoms associated with signs of organic nervous disease, often were found to clear up in respect to their mental symptoms. He referred to a tabetic in which a transient mental episode occurred as a result of an unusual physical and mental stress. He felt that in all this wide group of cases the diagnosis of cerebro-spinal syphilis should be first made and then those factors determined which suggested that the case would run the course of a slow tabetic or the rapid form known as general paralysis. The mere existence of mental symptoms did not necessarily indicate the latter course.

Dr. Grainger Stewart (London) referred to the value of careful observation of the abdominal reflexes. This was specially valuable in cases of slow-growing intracranial tumours, especially in cases of extracerebral tumours—endothelioma and fibrosarcoma—opposite silent areas of the brain. In the very early stages before definite signs had arisen, and more especially on those days on which the patient was not feeling so well—probably because of a temporary rise in his intracranial pressure—examination would reveal that the abdominal and epigastric reflexes were abolished or diminished on one side, the side opposite the lesion, and that this change was constantly associated with a modification of the corresponding plantar reflex. The plantar reflex might not be extensor in type, but might be less easily obtained when compared with the corresponding reflex on the opposite side.

Dr. Farquhar Buzzard (London) regretted that more attention had not been paid in the course of the discussion to Dr. Head's reference to the importance of the history

of disease. He had noticed the eagerness with which the audience listened to any suggestion of a new physical sign. Further knowledge of diseases must follow on the more exact study of early subjective symptoms. Dr. Buzzard gave as an instance the pains of tabes dorsalis, and pointed out the characters by which they could be distinguished long before there were any physical signs of the disease. The developments of modern psychology constituted an attempt to apply to mental disease the close study of its history on the lines which had been followed with such good results in organic neurology.

Dr. J. P. Lowson (London) insisted upon the need for a word to distinguish between disturbances of function whose origin was mental from disturbances of function whose origin was a structural change. Hysterical amnesia corresponded to the patient's notion of "memory."

Mr. Archibald Stanley Percival (Newcastle-on-Tyne) had seen one case of retrobulbar neuritis which he afterwards heard suffered from a temporary paresis of the sixth and fourth nerves. He would like to ask whether retrobulbar neuritis had not been observed in such cases as those to which allusion was made by Dr. Collier. In early retrobulbar neuritis there were no objective signs; one had to rely on the presence of a central scotoma (partial or complete) and on light-sense tests. Further, retrobulbar neuritis might have just the same significance as choked disc; if there were an adhesion in the nerve sheath at the site of the optic foramen so that there was a block in the perineural (potential) canal at this site, signs of choked disc could not occur, but they were replaced by signs of retrobulbar neuritis. It was essential that examination for the symptoms of this condition should be made early, before the patient's mental processes became dull. He had seen a case of retrobulbar neuritis in which the diagnosis of a cerebral tumour was controverted on the ground that there was no ophthalmoscopic evidence of an optic neuritis. The patient died, and a cerebral tumour was found. In a small proportion of cases (about 1 per cent. or so) an anatomical peculiarity existed in which retrobulbar neuritis would replace the ordinary choked disc of cerebral tumour.

Dr. Bedford Pierce (York) wished to ascertain the significance of certain common symptoms. Many patients said that their illness began with the feeling of "something snapping in the head," or of "the brain moving or turning over," or of "water running inside the head." What, he asked, was the physiological meaning of these abnormal sensations?

Dr. R. N. Goodman (Kingston) said that, as far as the outlook of the general practitioner was concerned, the use of the term hysteria should be given up or severely limited. The distinction between organic and functional conditions was that the former persisted and the latter cleared up. He instanced the occurrence of angio-neurotic conditions of headache with prolonged course and ultimate recovery which were only saved from being called hysterical because the tender points and swellings could be felt by the finger. Hysteria might safely be used in cases where the exaggeration of symptoms took new forms from time to time, and so were indications of a mental disturbance. In all other cases the use of the term hysteria was a confession of ignorance.

Blacklock and Carter, of the Liverpool School of Tropical Medicine, showed last year that *Anopheles plumbeus* may become infected with the malarial parasite, if kept at 82° F. after its infecting meal. It is possible, therefore, that the species may act as a carrier of malaria in this country. It frequents woods, and breeds in rot-holes in branches of trees or in hollows in their roots. At the request of the Ministry of Health the Mosquito Investigation Committee of the South-Eastern Union of Scientific Societies is inquiring into the distribution of the species, and as to the stages and situations in which it survives the winter. It hopes to present an interim report on the larvae before the end of this year. *A. plumbeus* has borne several other names, including *A. nigripes*.

It is reported that magnesium sulphate and calcium carbonate are used extensively in Italy for the adulteration of cocaine. Some specimens do not contain even a trace of cocaine.

NOTES ON BLACKWATER FEVER.*

BY

ALEXANDER GOODALL, M.D., F.R.C.P.E.,

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During my service as officer in charge of a medical division in Macedonia I saw a large number of cases of blackwater fever. Some of the chief points in 14 of these cases are tabulated:

Case.	Previous Malaria.	Malaria Parasites.	Quinine.	Result.
1	+	+	V	Recovered.
2	+	+	V	"
3	+	+	V	"
4	+	+	M	Died.
5	?	+	V	"
6	+	0	V	Recovered.
7	+	0	V	"
8	+	+	M	"
9	0	+	V	"
10	?	+	V	"
11	+	+	O M	"
12	0	+	V	"
13	0	+	O	"
14	+	+	M	"

O=oral; M=intramuscular; V=intravenous.

All the patients were Serb except Cases 5 (Greek) and 11, 12, and 13 (British); all recovered except Cases 4 and 5.

It may be noted that 9 of the 14 cases had had malaria previously, 3 had not, while in two cases the facts could not be ascertained. Case 12 arrived from England at the end of August. She had not had malaria, and had not taken quinine. She began to suffer from blackwater fever on October 10th. In 12 of the 14 cases malaria parasites were found. They were all of the malignant tertian type. Case 13 is interesting in this respect. Very numerous young malignant rings were present in the blood at 11.30 a.m., and blackwater began at 3 p.m. the same day.

The cases were of all degrees of severity. In the majority there was only one attack, which lasted for two days, and then the urine became clear. A few of the cases had a second attack. Case 11 had three attacks, and had a desperate struggle for life each time. The temperature was only slightly raised in all the cases. They all showed jaundice, and albuminuria usually persisted for a few days after the haematuria.

Notes on the Two Fatal Cases.

Case 4.

A Serb, aged 46, admitted to hospital on September 5th, 1918, complaining of headache, pains and cough. He had been ill for four days. The temperature was 97°. He had suffered from malaria in 1917. He was jaundiced, anaemic, and appeared to suffer from profound toxaemia. He passed urine in bed, and it was not till September 10th that a sample was obtained. This contained haemoglobin, broken-down red corpuscles, epithelial cells, and blood and epithelial casts. He was treated with intramuscular injections of quinine, but signs of pneumonia supervened. The spleen became palpable, vomiting was severe, and death occurred on September 12th. The temperature never reached 99°.

A *post-mortem* examination showed a flabby, dilated and fatty heart, with blood-stained endocardium and some recent vegetations on the mitral cusps. The lungs were oedematous. The right lower lobe showed red and grey hepatization. The liver was enlarged and fatty. The gall bladder was distended. The spleen was three times its normal size. There was an increase of fibrous tissue with soft pulp and obscure Malpighian bodies. The kidneys were enlarged, with cortex and papillae swollen and congested. The pancreas was hard and fibrous. The alimentary canal presented nothing noteworthy.

On microscopic examination the liver showed a moderate degree of fatty degeneration. There was a golden coloured pigment in many of the liver cells, and part of this gave the

* A communication to the Pathological Society of Great Britain and Ireland.

free iron reaction. The spleen contained pigment in leucocytes and endothelial cells and also free. The kidneys showed some pigment, probably malarial, in some of the glomerular capillaries. The tubules were catarrhal and contained much broken-down material, evidently consisting of partially disintegrated red corpuscles. There were also numerous casts. The broken-down material was most abundant in the collecting tubules. The bone marrow was myelocytic but showed no great change. The heart muscle was atrophic; there were a few haemorrhages between the fibres. The right lung showed croupous pneumonia.

Case 5.

A Greek, admitted on September 25th, 1918, after four days' journey. He was anaemic and yellow, and passed blood-stained urine in bed. The spleen was enlarged, the lungs seemed healthy, but the heart was dilated and the pulse was almost imperceptible. He received an intramuscular injection of quinine bihydrochloride, 20 grains, at 2 p.m., and as the pulse had improved he received an intravenous injection of 20 grains at 6 p.m. This was repeated the next day in a pint of saline solution. Malignant tertian parasites were found in the blood. He died at 2.50 p.m. The temperature had never exceeded 99° F.

Post-mortem examination showed a dilated heart with flabby muscle. The lungs were congested, the liver pale and fatty, and the gall bladder distended. The spleen was six times the normal size. The kidneys were dark in colour.

Microscopic examination of the liver showed extreme fatty degeneration. Every here and there were necrotic areas. The cells contained much brown pigment, and a small portion of this gave the free iron reaction. The spleen showed fibrosis and great masses of brown pigment in endothelial cells and large leucocytes. The kidneys showed catarrh of the convoluted tubules. There were blood corpuscles and detritus in the collecting tubes and ascending limbs of Henle's loops—most in the former. The bone marrow was myelocytic. The giant cells were numerous and appeared healthy. The heart muscle was extremely atrophic with exudation between the fibres.

I wish to submit that these cases strongly support the view that blackwater fever is a manifestation of malaria, and that the onset of the haematuria or haemoglobinuria may be determined by exposure to cold. The majority of my Serb patients had taken part in the attack that led to the Bulgar capitulation, and all of them had suffered cold and privation.

Tropical haemoglobinuria or haematuria is commonly recognized in three forms—(1) malarial haematuria, (2) quinine haemoglobinuria, (3) blackwater fever.

Malarial haematuria is characterized by the presence of malarial parasites and the absence of jaundice. In an experience of some 20,000 cases of malaria[1] I have only seen one example, and I regard the condition as due to a localization of parasites in the urinary passages or a local lesion resulting from the parasite or its toxins, and comparable to malarial appendicitis, pneumonia, or keratitis

Quinine haemoglobinuria is widely recognized, but I have never met with it in spite of the fact that all my malaria cases never received less than 30 grains of quinine daily for many successive days, and I have given as much as 60 grains intravenously within an hour.

The arguments adduced against the malarial origin of blackwater fever are the following:

1. The rarity of blackwater fever in places where severe malaria is prevalent. This seems to me a doubtful proposition. The incidence of blackwater is often transient, and I agree with Parsons and Forbes[2] that it is often overlooked.

2. The seasonal incidence of blackwater fever differed from that of malaria in Macedonia, blackwater being most common in the winter months. I think that this may be accounted for by the factor of exposure to cold.

3. It is frequently stated that the administration of quinine often causes blackwater fever, and that blackwater fever is not benefited by quinine. I am prepared to controvert both statements. Of course blackwater fever may follow the administration of quinine if the dosage is inadequate or if a sufficient number of corpuscles has been affected before it is given. I have administered quinine intravenously in large doses in blackwater fever at every stage and have never seen harm follow, and latterly intravenous quinine in saline was my routine treatment. In that practice I was by no means alone.[3]

4. It is frequently stated that malaria parasites are rarely found in blackwater fever. This is contrary to my experience.

Noël Paton[4] and I pointed out in 1903 that haemolytic agents fall into two groups:

1. *True haemolytics*, such as glycerin and distilled water, dissolve out haemoglobin, which is set free in the plasma and appears in the Bowman's capsules in the kidneys.

2. *Toxic agents*, such as toluylen-diamine and phenylhydrazin, poison the corpuscles but do not liberate haemoglobin. Very large doses of phenylhydrazin kill animals with the formation of a brown pigment in the blood resembling but not identical with methaemoglobin and with haematuria. Haemoglobin does not appear in the Bowman's capsules, but blood pigment appears in the urinary tubules and in their epithelium. In smaller doses there is no haematuria, but pigmentary changes occur in the liver, spleen, and kidneys.

The distribution of damaged blood corpuscles and pigment appears to be identical in blackwater fever with that found in animals poisoned with the second class of haemolytics. Blackwater fever is therefore regarded as due to destruction of blood corpuscles by the malarial parasite. The parasites associated with blackwater fever are the malignant type which does most damage to the corpuscles, has the greatest tendency to cause local symptoms, and sporulates and liberates toxins mainly in the internal organs. A moderate amount of damage may lead to jaundice only. A greater destruction of red corpuscles may be more than the usual haemolytic organs can deal with, and blackwater fever results. The influence of cold is, I think, an important causal factor. W. Hunter[5] showed that normal animals became more deeply jaundiced than spleenless animals after poisoning with the second class of haemolytics. Paton[4] and I confirmed this observation, and concluded that the greater jaundice in the normal animals was simply due to a more rapid fixing of the poisoned corpuscles in the portal system.

One does not overlook the important influence that cold has been shown to exert in determining an attack of paroxysmal haemoglobinuria, but it is unnecessary, I think, to invoke immunity reactions to explain its influence in blackwater fever. Cold may be regarded as acting much in the same way as the spleen does in the experimental animals, by retaining a larger proportion of corpuscles in the internal organs, and thereby exposing them to a larger contact with the haemolytic organs. Such a view might afford a simple explanation of apparent anomalies in the incidence of blackwater fever both as regards time and place.

Summary.

Fourteen cases are tabulated. In twelve of these malaria parasites were found. All the cases were treated with large doses of quinine and twelve recovered. It is contended that malaria is the essential cause of blackwater fever, and that exposure to cold may be an important factor in determining its onset.

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RESUSCITATION IN DEATH UNDER ANAESTHESIA.

BY

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THERE appears to be a need for the greater advocacy of cardiac massage as a measure of resuscitation in death and impending death under anaesthesia. Records of fatalities still appear without mention of cardiac massage having been practised, and without any reason for its non-employment being advanced. Such a case, for instance, was described last year, and not one of the twenty-six contributors to the correspondence which followed made any comment upon the statement that "artificial respiration was carried on for nearly two hours, but there was never the slightest response." It is true that the means employed for resuscitation of this case—death occurring during an adenoid operation—was not the issue particularly raised for discussion; but the absence of comment could not but have implied acquiescence in the correctness and adequacy of the treatment. To those, however, who have proved the merit of cardiac massage the case is but one of many which clearly indicates that this operation ha

not yet received the recognition which it deserves as being the only measure that can with any reliance be counted upon to re-establish the heart's action when it has been suddenly arrested under anaesthesia.

The living tissues of the body, according to their nature, retain a varying measure of vital force and survive for varying periods the suspension of their blood supply. The more lowly their origin the more durable is their life. The connective tissue and epithelial elements may survive for days, as is shown by their preservation if kept cool for purposes of grafting. Muscle may preserve its vitality for hours, but the delicate fabric of the central nervous system, upon which vital systemic processes depend, does not survive for more than thirty minutes at the most deprivation of its vascular nutrient supply. Accordingly, experience of cardiac massage has shown that cessation of the circulation for thirty minutes means inevitably the termination of life, so that after a longer period cardiac massage and artificial respiration alike are futile.

If early and appropriate treatment is pursued the patient, upon recovery from the effects of the anaesthetic, will often appear to be none the worse for his adventure, except for a protracted period of somnolence, which would seem invariable. So grave is the cerebral irritation set up by a prolonged cerebral anaemia, however, that a state of unconsciousness with incontinence may occur, and mental disturbance and convulsive rigidity and choreic movements will ensue, which either prove temporary and controllable by depressant drugs, or increase in frequency and force until death occurs. A case has been graphically recorded by Mr. Mollison[1] of a boy aged 6 who, after suddenly expiring during a tonsil and adenoid operation, was revived by cardiac massage instituted about twenty minutes later. It was about five weeks before his nervous system recovered and he entirely regained his normal mental standard. If such a state of dangerous nervous disturbance is to be avoided, cardiac massage must be begun earlier than in this case, probably within ten minutes at latest. Every medical man should familiarize himself, by practice on the cadaver, with the procedure of cardiac massage, as with that of tracheotomy, which all are schooled to perform and which requires greater skill.

Many medical men are unfamiliar with cardiac massage: some are prejudiced against it. There is also a fear of peritoneal contamination consequent upon hasty and inadequate preparation; but such a contingency is extremely unlikely, even though the skin of the epigastrium be unprepared or only smeared with iodine. Such a consideration should not influence the decision of the surgeon who is confronted with an occasion of grim emergency that imperatively demands quick intervention if life is to be restored. Undue time is apt to be lost by the preliminary trial of other measures, particularly of artificial respiration, which has so long been the accepted practice that it is still resorted to, even when the heart has ceased beating. In such a case there is scant likelihood of artificial respiration meeting with any success.

Beyond a period of half an hour no measure whatsoever will avail.

The question arises as to whether the external manipulations of artificial respiration are ever capable of restarting the heart-beat. Conceivably they are, for doubtless the chest movements have some effect (especially in young subjects with pliable thoracic walls), by reason of the rhythmic variations of intrathoracic pressure which they produce, in mechanically promoting a blood flow, and by reason of transmitted pressure, in stimulating the heart. This conception affords sufficient justification for artificial respiration to be given a trial for a minute or two, not longer. Arganď's finding that mechanical stimulation of the heart acts best when applied to the auricular region has led to a practice of applying jabbing intermittent pressure over the upper epigastrium during the performance of artificial respiration. But it would be vain to place reliance on such external means, whose success at best has proved rare and haphazard. The case of new-born infants is different. Mr. E. Ward[2] advocates and vouches for a method of external cardiac massage which, owing to the pliability of the chest wall, would appear to be an invaluable and successful innovation in the treatment of asphyxia neonatorum, especially the white form with weakened or imperceptible umbilical pulse. On the operating table it is customary to employ either Sylvester's method of artificial respiration or a method of grasping and compressing the chest which has a similar if not more beneficial effect. These manipulated movements do not of themselves suffice to afford an adequate respiratory tide; it will be profitable to examine their influence and to assess their value.

In the inanimate state the diaphragm is inactive, atonic, and relaxed, and moves only passively, subject to mechanical laws; consequently the normal chest capacity is reduced by the increased response of the diaphragm to negative pressure above and positive pressure below; this reduction is greater when the subject is in the inclined plane. When Sylvester's inspiratory manipulation is made the chest is expanded, but the advantage gained is less than would at first sight appear; the diaphragm rises further in consequence of the increased negativity of the thoracic pressure brought about by the expansion of the chest and of the increased intra-abdominal pressure consequent upon stretching of the abdominal parietes as the arms are raised and pulled. At the expiratory manipulation the amount of air expelled is less than might be anticipated, for whereas the capacity of the chest is reduced by its compression, the diaphragm descends, as is seen by the bulging abdomen; here again there is a discount to the advantage gained. Thus, contrary to normal action, the diaphragm moves upwards at inspiration and downwards at expiration—a to-and-fro movement that weighs against effective costal respiration, upon which Sylvester's method depends entirely for its success. This tends to respiratory stasis, and—in the young with pliable chest walls, by the superabounding effect of compression—finally to lung collapse. A case was narrated to me by Dr. Charles Hadfield of death due to respiratory failure under anaesthesia. Sylvester's unaided method of artificial respiration was employed upon a child for a long period without any evidence throughout of lung ventilation being obtained. At the autopsy there was no sign of obstruction in the air passages, and the lungs were found in a state of collapse. I think the interpretation I have given is applicable—that owing to contrary movement of the diaphragm the influence of costal movements was negatived, and chest compression prevailing, the air was gradually eliminated and finally expressed from the lungs. I have seen a similar condition of the lungs at autopsy in a baby which succumbed to severe rickets, with extreme costal recession from marked softening of the ribs.

It is imperative, therefore, when employing Sylvester's method to augment lung ventilation by Howard's modified plan, an assistant making expiration more effective by the application of pressure over the epigastric zone and so elevating the diaphragm, and supplementing the inspiratory movement by suddenly removing the pressure exerted; this effects a simultaneous descent of the diaphragm and costal elastic recoil.

It may seem paradoxical, but it is nevertheless true, that the manipulations of cardiac massage fortuitously produce a better amplitude of respiration than is obtainable by the external artificial methods. It is difficult, therefore, to understand the reason for carrying on artificial respiration concurrently with cardiac massage, as is so frequently reported. If cardiac massage is being performed lung ventilation at once ceases to be a matter of concern; any accessory means employed is redundant. In the bimanual manipulation of cardiac massage the dome of the diaphragm is forcibly raised simultaneously with compression of the front of the chest, and a forced and complete expiration is thus brought about. This is followed, as the pressure is suddenly released and the descent of the diaphragm is aided by that of the liver (which is levered down by the back of the hand) by a deep inspiration. In comparison with Sylvester's method, given previous trial in a case, the effect upon the freedom of respiration is audibly greater; this is what would be expected if one considers that the diaphragm, the chief factor in the respiratory act, is directly brought into play. It is important to bear in mind this contingent incident of cardiac massage, for in cases of respiratory arrest with gradually weakening heart-beat an earlier decision can be made to undertake a procedure by which not only the circulation but the respiration will derive advantage.

Cardiac massage has an influence upon the circulation that I have not seen previously described. Well before a first heart-beat is initiated a change in the appearance of the patient is witnessed, the pallor of the skin gradually being replaced by a perceptible flush. This indicates in the first place that the manipulations supply a part of the necessary force—previously in abeyance—to propel the blood stream, and by the agency of the intracardiac valvular arrangements set in motion an artificial circulation that is comparable to a physiological model made up with tubing and a Higginson's syringe. In one of my cases the intraocular tension was observed to improve, and in Mr. Mollison's published case the pupil of the eye

was observed at this time to become smaller. The heart is at first uncertainly palpable in its extreme diastolic flabbiness, but prior to the occurrence of its first contraction it is felt gradually to become more firm. The first heart-beat is minimal, and of the character of a "twisting kick," and the contractions, once started, assume regularity and gain strength as the manipulations proceed, until after some six to twelve contractions a maximum excursion is reached, which remains constant, at remarkable vigour. The staircase phenomenon of progressive augmentation is attributed to the beneficial effect of contraction. The extraordinary force of the maximal cardiac contractions is regarded as dependent upon increase of muscle fibre length that occurs with exceptional ventricular relaxation and distension. Other influences that may work to the same end are the unprecedented cardiac rest, the enhanced coronary circulation consequent upon massage, the persisting abeyance of governing inhibition, and cumulative muscular and augmentor stimulation mechanically induced. However this may be there appears reason to continue with massage until automatic contractions are well established at maximum vigour, as reflected in the radial pulse. In a case in which I ceased massage before the heart-beats had become maximal they again stopped, and failed to recur in spite of renewed intervention. In cardiac massage the auricular parts of the heart are not accessible to the manipulating hand, approach being hindered mesially by the inferior vena cava, and from before by the coronary ligament. Practically it is the ventricular part of the heart only which is squeezed; if an attempt is made to include the auricular portion within the scope of the operation, the heart is lost from the grasp, and the respirations become inadequate or cease.

It would appear that in the initiation of the heart-beat artificial circulation must constitute an initial causal factor that is of paramount importance whatever may be the actual determining exciting cause. Possibly an artificial circulation through the cardiac and central nervous tissues is all-sufficient, by its influence upon elimination and supply, to reconstitute a normal state in which functional activity becomes spontaneous. The cause of the heart-beat according to present physiological teaching is said to lie in the cardiac muscle, the salts of the blood supplying the osmotic conditions that lead to its irritability and contractility, and affording the necessary constant stimulus for the heart's automatic action. But it is difficult to conceive in cases such as emotional syncope, where these conditions have been little disturbed, why the heart should remain permanently arrested in action and not spontaneously restart beating. Some other than an inherent exciting factor would seem, therefore, not to be precluded. It is possible that once nutritive conditions are restored and the irritability of the heart is raised again to a susceptible threshold, it responds by a first beat to the mechanical stimulation of the hand (or to an artificially produced intracardiac tension, as demonstrated experimentally by Gaskell with the apex of a frog's heart).

Further observations, corroborative and otherwise, are required of clinicians who have occasion to resuscitate by cardiac massage cases of death under anaesthesia, and it will be of great help if an understanding of the processes concerned is quickened by a clear pronouncement by physiologists, to whom we must look for guidance and more definite direction.

Methods of Performing Cardiac Massage.

Subdiaphragmatic Massage.—An opening is made in the epigastrium to the left of the middle line, and large enough to admit a hand, which is passed, palm upwards, between the left lobe of the liver and the diaphragm. The fingers are pushed well backwards and upwards against the left cupola of the diaphragm, and a forced jabbing movement is made behind the ventricular region of the heart, so as to squeeze it effectively against counterpressure made by the other hand on the precordial region of the chest wall. The compressions are repeated at a rate of about forty a minute (a more rapid rate is not practicable), and are carried on until the heart-beat is re-established with regular rhythm and maximal power as reflected in the pulse. The abdominal wound is then sutured.

Transdiaphragmatic Massage.—This is a technique devised by Captain T. C. Bost.[3] The abdomen is opened as before, and the further steps are only proceeded with if subdiaphragmatic massage fails. The costal attachment of the diaphragm is divided sufficiently to force an opening into the left pleural cavity, through which the right hand is insinuated, and the heart grasped and squeezed as it lies in its pericardial sac. Artificial respiration must be carried on throughout the operation. In the case recorded by Captain Bost the measure met with success after failure of the subdiaphragmatic method.

Transpericardial Massage.—This very difficult method has not in practice met with gratifying results. A flap of the precordial thoracic wall is raised, the pericardium opened, and the heart directly squeezed.

Supradiaphragmatic Massage.—This method affords ready access. A lower intercostal space on the left side is quickly opened by a lengthy incision, well retracted, and a hand is introduced into the left pleural cavity. The heart, enclosed in its pericardial sac, is grasped and squeezed. I have seen no mention of such an operation being designed to meet the occasion. With failure by subdiaphragmatic massage it arises as an alternative to the method designed by Captain Bost, who claims as an advantage of his plan that occurrence of pneumothorax is practically precluded by the close fit of the diaphragmatic opening to the wrist, and that artificial respiration can be efficiently carried on.

Record of Cases.

CASE I.

On April 14th, 1917, a man aged 54 was brought to the theatre for radical excision of an advanced epithelioma of the chin. He struggled somewhat whilst being anaesthetized with chloroform, and as the chin and neck were being smeared with iodine he became pallid, the heart stopped beating, and respiration ceased. Artificial respiration, begun at once, was practised for a time without avail. As slight tremulous epigastric movements were observable (probably from ventricular fibrillation) artificial respiration was resumed, but it became evident that the man was dead, for there was not the slightest sign of respiratory movement, heart-beat, or pulse. Eye reflexes were unobtainable, the lids open, pupils dilated, and eyeballs flaccid. At this stage the epigastrium was rapidly smeared with iodine, an opening made into the abdomen, and cardiac massage begun. At first no cardiac contraction could be felt, but in a minute or two a first beat was felt, and the beats that followed increased in strength and became regular. With the establishment of a strong bounding pulse the massage was stopped and the abdomen sewn up. Free respirations occurred with the manipulations, and prior to the initiation of the heart-beat surface flushing was observed to take the place of extreme pallor. The man's condition remained good, and in view of his unhappy history I resolved to proceed with the operation. This took nearly two hours, being an extensive procedure necessitating excision of a portion of the mandible together with the soft structures and glands implicated, the whole being removed *en masse*.

There was some loss of blood and the patient was weak, but after a lengthy period of somnolence he made a good recovery, and was ultimately discharged well. Animation was computed to be suspended for a period of about ten minutes. The catastrophe occurred during induction by chloroform, and appears to have been a cardiac syncope precipitated by undue haste in preparation of the operation area in a subject afflicted with fears. Inhalation of iodine vapour may have been the deciding factor.

CASE II.

On May 5th, 1917, a soldier, aged 30, was prepared for amputation of the right thigh, which had become necessary on account of prolonged suppuration, with recurring secondary haemorrhages, attending severe offensive sloughing gunshot wounds of the leg with comminuted fracture of the tibia. The femoral artery and vein in Hunter's canal had been tied on March 28th, but the septic condion of the limb had become aggravated and haemorrhages had recurred. When the patient was brought to the theatre he was pallid and in a septic state. After he had been lightly anaesthetized with ether, Clover's inhaler being used, he suddenly ceased breathing, the heart stopped beating, and the pupils dilated widely. Artificial respiration was at once performed and saline was infused. Much time was expended in employing the usual means towards resuscitation, but they all failed, and after about twenty minutes the patient was left as dead. The surgeon in charge of the case acceded to my solicitation that cardiac massage might be performed. Without any preparation, I rapidly opened the abdomen and began the manipulations, which met with success after they had been practised for about three minutes; the same sequence of events was observed as in the previous case during their performance. The heart was beating with great force and regularity and the pulse was strong before the manipulations were stopped. The abdominal wound was then sewn up and I myself continued the anaesthetic whilst the thigh was amputated at the lower third, the operation being completed with success. The patient left the ward for the theatre at 1.30 p.m. and returned to the ward at 4 p.m. His temperature was then 96° F., and he was collapsed. A rectal injection of 1 drachm of spirit of ammonia in 5 oz. of water was then given. Twenty minutes later, $\frac{1}{60}$ grain strychnine hydrochloride was injected hypodermically and 10 oz. of saline were ordered per rectum, half-hourly. About 5 p.m. spasmodic convulsions commenced and continued until 6 p.m., when they became less frequent. At 6.30 p.m. the temperature was 102° F. One ounce of brandy was ordered three-hourly. The seizures recurred half-hourly, the spasmodic rigidity affecting chiefly the left arm and the neck muscles. Respirations became increasingly rapid and distressed, the pulse imperceptible, and the patient died at 10.28 p.m., about six hours after resuscitation. Consciousness was never regained. He exhibited slight movement at times

and opened his eyes, which were turned to the ceiling. Prolonged suffering illness, sepsis, and repeated haemorrhages must have rendered the case particularly vulnerable, and it is doubtful under the circumstances if the cerebrum could have withstood a less protracted arrest of its circulation. As there had been a good deal of muscular tremor prior to the operation, an investigation was made after death as to the presence of tetanus, but this was excluded. The operation had not been begun at the time of the catastrophe.

CASE III.

An elderly woman in a state of collapse was undergoing operation for strangulated femoral hernia when the heart stopped beating. Cardiac massage was at once performed and spontaneous contractions recurred. As the abdomen was being closed the heart again stopped beating, and a second attempt with cardiac massage then failed. Although the patient was a poor subject, this experience seems to indicate that massage should be carried on until contractions are established at maximal strength, the task not being considered complete merely upon their reappearance.

CASE IV.

In this case general adhesions were found in the upper abdomen, and it was not possible to insert the hand below the diaphragm or below the liver. Pressure below the stomach immediately forced gastric contents out of the mouth. Methods 2, 3, or 4 were indicated but not tried.

CASE V.

On February 7th, 1918, a case of perforated gastric ulcer in a man aged 38 years came under my care. The operation was performed fourteen hours after perforation, and the abdomen was found full of gastric contents. There was a large opening in an indurated ulcer at the lesser curvature of the stomach. It was impracticable to treat this otherwise than by passing a tube to the opening. Suprapubic and loin drainage was provided. Whilst the wound was being sewn up the patient expired. Cardiac massage was unsuccessful. Success was not to be anticipated, as the subject was devitalized.

CASE VI.

On June 13th, 1917, a glass cutter, aged 43 years, was struck on the left leg during an air raid. Severe bleeding, which preceded admission, continued from two deep contused wounds. There was tearing of muscle and comminuted fracture of tibia and fibula at their upper third. The patient was restless and anxious, and had no feeling in the toes. Operation was performed, shrapnel being removed and the punctured anterior tibial artery ligated. Gangrene appeared on the second day and amputation was performed at the middle of the thigh, the flaps appearing suspicious. The patient sank during the operation, pulse and respiration ceasing. All methods to revive him, including cardiac massage, failed, as was to be expected in such a case of toxaemia.

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HEAD OF RYE GRASS IN THE LUNG REMOVED FROM PLEURA.

BY

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THE following is a case in which an ear of rye grass (*Lolium perenne*) was inhaled, and after producing symptoms of an unusual character was extracted from the pleura.

Children, in this part of the country at least, play games with ears of rye grass. If one of the ears is placed on the back of the neck, bristles upwards, it gradually disappears down the back. Another game is to throw the grass at one another, the sharp bristles readily adhering to the hair or clothing. A third, and more dangerous game, is to place the grass on the tongue, when it slowly creeps backwards towards the throat.

The patient in this case, a boy aged 14 years, having put an ear of rye grass into his mouth, felt it pass into the throat, and was aware of a strong prickling sensation in the pharynx. The prickling suddenly disappeared after some hours. As there was no coughing or disturbance of any kind it was assumed that the grass had been swallowed.

Twenty hours later he was seized with acute pain in the right side of the chest in the area corresponding to the lower lobe of the lung, and was forced to go to bed. The pain continued, and remained severe up to about sixty hours from the onset, and then abated. His medical attendant was called seventy-two hours after the swallowing of the grass. At this time the physical signs suggested consolidation of the lower lobe, and with free fluid in the pleural cavity at the level of the limit of the lower lobe. There was no cough and no sputum and the picture was one of a pleuro-pneumonia with the pleural element predominating. The temperature was 104°, and kept steadily on this line up to admission to hospital, eleven days after it reached this level. The fluid in the chest increased until the whole right pleural cavity was filled. Only on the eleventh day was a little blood and a few spots of very foul pus brought up by coughing. Exploration of the chest proved the fluid to be very foul pus, and he was referred to me for the drainage of an empyema.

On admission his general condition was very grave, with great dyspnoea and much toxic absorption. Resecting the ninth rib in the scapula line, I evacuated about three pints of very foul pus. At the end, a complete ear of rye grass was floated out of the pleural cavity, covered with débris. No cavity could be felt in the lower lobe of the lung. Continuous drainage and lavage by Dakin's solution through a Dobson's cannula completed the operation.

On the eighth day a large slough of lung tissue was extruded from the pleural cavity, followed in two days by a similar one, at least three inches long and a quarter to half an inch thick.

The boy is making an excellent recovery. There is practically no sputum, and very little cough to be noted.

On direct examination of smears from the pus, large numbers of bacilli, Gram-positive and negative, were found, together with staphylococci and streptococci. Cultures were all overgrown with saprophytic organisms. No branching fungi of the actinomycosis order were discovered.

The following points in this case are of interest:

1. Its rarity in view of the fact that the games mentioned, especially that concerning the tongue, are so common.
2. The inhalation of the grass with the absence of the usual intense paroxysm of coughing.
3. The entire lack of cough and sputum for eleven days.
4. The rapidity of involvement of the pleura, which is almost suggestive that the ear of rye grass "forcibly crept" its way through the lung tissue and involved the pleura at so early a date that the damaged lung tissue and consequent abscess drained into the pleural cavity instead of being expectorated by way of the bronchus.

INTRANASAL DACRYOCYSTOSTOMY.*

BY

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IN summarizing the history of the various plans which have been adopted for making a permanent opening from the lacrymal excretory system into the nasal cavity, the earlier efforts may be neglected. These were designed to provide a new outlet from the nasal duct, but experience has proved that the lesion to be circumvented is rarely, if ever, situated so low down that such methods could succeed. The abnormality, usually a stenosis, is practically never at a lower horizontal level than the junction of the lacrymal sac and the nasal duct. The sac, not the nasal duct, must be attacked; to open the duct only is useless.

The first reported case of such a sac operation was that of Strazza in 1903. The technique adopted by different surgeons has varied. Yankauer's operation may be described as a plastic reconstruction of the nasal duct right up to the sac, and so approximates to the principle of an attack directed on the sac itself. Mosher removes the anterior end of the middle turbinate, and then approaches the sac via the unciform process. Beck devised two operations, in one of which he opened the sac into the nose by means of a burr introduced through a canaliculus. Von Eicken works from the antrum; but, as West remarks, only the nasal duct is accessible, and, in order to expose the sac from the antrum, a piece of the orbital floor must be removed. Choronshitzky, Wiener and Sauer force a probe through canaliculus and sac into the nose, and then remove, with the probe as guide, the débris of bone and mucosa; it will be noted that these surgeons do not undertake any formal preliminary removal of bone and mucosa so as to make a window. West, Halle and Polyak perform a formal window operation intranasally, then seize the sac and deal with it by partial excision. Of these window operations West's may be regarded as the prototype.

Broadly speaking, and apart from combined operations in which the sac is approached from both inside and outside, all intranasal manœuvres for draining the lacrymal sac fall into one of three types.

The first is the most ambitious undertaking, in that it aims at reconstructing the lumen of the nasal duct right up into the sac. This form of operation, of which Yankauer's is the only instance, is not generally favoured. It is technically difficult of performance, and in any case is likely to fall short of its object because the lesion may

* A summary of a paper read at the Annual Summer Congress of the Laryngological Section, Royal Society of Medicine.

be in the sac itself, too high for access by this operation. The second type is the least ambitious in design, and the simplest to perform. Briefly it consists in creating a compound comminuted fracture of the lacrymal bone by forcing a probe through a canaliculus into the nose. This type commends itself on account of its ease of performance, but the amount of bone comminuted and subsequently removed from the nose, and the area of mucosa simultaneously excised piecemeal, are variable. In my experience of several cases of this operation the opening has not remained permanently large enough for drainage. The third type is a compromise between the first two. It attempts nothing so ambitious as the reconstruction of the duct, but is not satisfied with the rougher method of driving an instrument from the punctum through the sac into the nose. In this third species of operation a window resection is performed, over the nasal aspect of the sac, which is then seized and partially excised. In his first seven cases West resected the bone over the nasal duct; finding this inadequate, he devoted his attention thenceforth to the sac itself, thus elaborating the operation known by his name.

Indications.

The selection of suitable cases rests less with the rhinologist than the ophthalmologist; the latter sees the patients first, and it is only some of the cases which he thinks wise to hand on to a colleague. It appears that ophthalmologists are often profoundly dissatisfied with the results of external excision, and it may be mentioned that attempts to cure an epiphora persisting after this operation by excision of the lacrymal gland have been considered disappointing. Intranasal drainage does at least hold out a hope of curing epiphora—a hope which is often fulfilled. As regards complaints other than epiphora—blepharitis, conjunctivitis, mucocele, or recurrent empyema of the sac—if the drainage is permanent, the prospect is at least as good as after the external procedure. If, then, the ophthalmologists refer these cases to us *faute de mieux*, it may be argued that West's operation is indicated in any case for which external operation had been considered advisable.

This generalization is subject to certain exceptions or reservations, which amount to *contraindications*. In the case of an acute empyema it is advisable to wait. There are also cases in which the persistence of an epiphora is less serious than the risk of putting the eye into communication with a neighbouring septic focus; for instance, when subsequent operation on a cataract is intended. But Silex operated on cataract after West's operation in two cases, both of which healed without complications. If an obstruction exists in the puncta or lacrymal ducts, these must be slit or dilated by the ophthalmologist before West's operation is considered. Certain contraindications are obviously temporary and surmountable. A high deviation of the septum towards the affected side precludes access; in such cases a limited submucous resection is required, and a fortnight or more later West's operation is performed. It may be necessary to remove the bulbous anterior end of a middle turbinate either at an earlier session or as part of the dacryocystostomy. A sinusitis will sometimes require previous attention; in particular, it may be necessary to open and drain ethmoidal cells. And, quite apart from this and in the absence of any sinusitis, a cell in the ethmoidal bulla may be an anatomical obstruction and have to be punched out before the window can be cut. Should a frontal sinusitis require preliminary attention, the internal operation may be found most suitable.

Technique.

The most important point is to remove sufficient bone, otherwise granulations will block the opening. As regards the mucous membrane, the manner of its treatment is less important. A small opening is not likely to close if the opening in the bone is generous. If the mucosal window is smaller than the bony, the edges of the soft tissue may be everted round the free edges of the bone. This small manœuvre is deliberately aimed at by some operators. In shape the bone removed is roughly oblong, with rounded corners, and comprises a flimsy piece of the lacrymal bone and a tough piece of the nasal process of the superior maxilla. In making the four cuts—two horizontal and two vertical—to separate the bone, the gouge tends repeatedly to slip off the bone without getting a purchase. To obviate this, which is due to the fact that in the narrow cavity the gouge necessarily lies almost parallel with the bone, West's set of instruments include some gouges curved back on themselves. To these I have added another, turned back at a still sharper curve; and I find I use this gouge more often than all the other six in the set put together. In traumatic cases of stenosis of the sac or duct, which were not uncommon in the war, the nasal process of the maxilla has often suffered fracture which has joined only by fibrous union. The fragment then rocks when struck with the chisel, and it is increasingly difficult to get a grip with the cutting edge; unless the bone be firmly supported by external counter-pressure a serious dislocation is probable.

If the services of an oculist to pass a canaliculus probe are not available at the operation, the less practised rhinologist may more easily make a false passage; this applies especially to old strictured and fibrosed canaliculi and tough fibrous sacs. Sometimes a small subcutaneous or subconjunctival haemorrhage shows itself as a black eye; this disappears within a week. If insufficient bone has been removed the opening will close. The mucous membrane of the septum may be abraded during the operation; in such cases, if it also happens that it has been necessary to remove the anterior end of the middle turbinal, an adhesion may form. I have never seen such an adhesion cause any trouble. One cause of disappointment, often anticipated, feared and discussed, is absent. There is not any macroscopic escape of nasal mucus into the eye, even on raising the intranasal pressure. The patient does not "blow his nose into his eye" in any case which I have ever seen or received an authentic report of.

In my series of 25 cases the percentage results in those I have been able to trace is 63 per cent. complete cures, that is, not lacrymating even in a keen wind; 25 per cent. failures, that is, still lacrymating intermittently even when indoors; and 12 per cent. partly cured, that is, having slight epiphora only when out in a keen wind. The longest duration of a perfect cure which I am able to show is six years. I think the results obtained by most operators in this country are sufficiently encouraging to justify a greater amount of attention being given to the West type of operation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CASE OF BROMOFORM POISONING, WITH RECOVERY.

The following case seems of interest, both because it shows how easily bromoform poisoning may occur, and on account of the interesting phenomena displayed during treatment:

L. T., a weakly child of 13 months, suffering from whooping-cough, received the usual dose of a mixture containing bromoform at 7 a.m., shortly after having had her morning meal. She appeared to fall asleep, but nothing untoward was noticed by the nurse until 8.10 a.m., when it was found that she could not be roused. On my arrival I found the child unconscious and unresponsive to any stimulation, but of a good colour and with respiration well maintained, although a little rapid, and pulse good. The pupils were contracted and would not respond to light; the corneal reflex was absent. Drug poisoning was at once suspected, and upon inquiry it was found that the bottle containing the bromoform mixture, which was being administered to all the children suffering from whooping-cough, had been emptied at the morning administration, so that bromoform poisoning then seemed certain. Strychnine sulph. $\frac{1}{60}$ gr. was given hypodermically, followed by black coffee 3 oz. by the rectum, brandy 20 minims hypodermically, and amyl nitrite to inhale. There was an instant response to amyl nitrite and to the injection of brandy: the pupils momentarily dilated and the child moved its arms, but unfortunately a spasm of whooping-cough succeeded, leading, after a few expiratory efforts, to cessation of respiration and cyanosis. Artificial respiration restored the breathing after about 30 seconds. As it was impossible to say how much bromoform the child had received, it was difficult to gauge her prospects of recovery, but as the pulse remained good and there was no respiratory difficulty (apart from the spasms due to whooping-cough) it seemed best to adopt a waiting policy. The patient remained in the same condition, which closely resembled a good level surgical anaesthesia with chloroform, until about 12.30 p.m., when the corneal reflex was found to be brisk, and she gradually came round. By about 2 p.m. she was bright and active. There was no vomiting.

The mixture that was being given to all the children in the ward was labelled prominently in several places on the bottle: "Shake the Bottle." It was dispensed as follows:

Bromoform 30 minims; tinct. senegae 3½ drachms; syrup. aurant., ½ fluid ounce. Shake well and add water gradually, rubbing up in a mortar, to 3 fluid ounces. Sig.: 1 drachm to be given to babies up to 12 months, 2 drachms to those over 12 months, every four hours. Each drachm should contain 1½ minims of bromoform.

This mixture has been used for some time with excellent results, and no untoward symptoms have been noted. But this case shows that persons having to administer this medicine (which, dispensed as above, is in poor emulsion) should be specially cautioned to shake the bottle immediately before pouring out the dose; they should be told also either to discard the last few doses entirely or to return them to the dispenser. The alcohol content of the mixture is not sufficient to take up the bromoform completely.

I am indebted to Dr. E. C. Hadley, Medical Superintendent, for permission to publish this case.

William B. Watson, L.R.C.P. and S.Edin.,
Assistant Medical Officer, North Evington Infirmary, Leicester.

SPONTANEOUS EXTRUSION OF FIBROID.

The discussion on puerperal sepsis, at the recent annual meeting of the British Medical Association, has been of more than ordinary value to the general practitioner in his daily work. Mr. Bonney evidently looks upon autogenous infection as being more common than heterogenous. The following case is one in which infection of the uterus—probably autogenous—was responsible for the natural cure of a fibroid.

Mrs. X., four months pregnant, and who had distinct thyroid enlargement of three years' standing, gave a history of old chronic pelvic inflammatory trouble. She crossed the Irish Sea on July 31st, was violently sea-sick, but soon recovered. On August 4th I was called to see her and found threatened abortion. She was moved to hospital on the same day. On August 6th a four months fetus was expelled. As the placenta was adherent and could not be expressed, it was removed piecemeal under an anaesthetic with a blunt curette. For ten days she made good progress, but thereafter began to complain of pain in the left iliac region. The temperature rose to 100° F.

On August 23rd, after consultation with Dr. Pantin, she was again anaesthetized and an intrauterine examination made. Several small fragments of placenta were removed; a fibroid the size of a cricket ball was found in the posterior wall of the uterus. Following the operation a rigor occurred, and the temperature rapidly rose to 106° F. From August 24th to 27th inclusive she was seriously ill, showing symptoms of septicaemia. On August 28th, at 3 a.m., she was seized suddenly with uterine pains, and a large fibroid—not polypoid—was passed by the vagina, followed by a considerable quantity of pus. The temperature became normal next day. She then made an uninterrupted recovery.

In this case an abscess probably formed in the uterine wall. The gradual process of suppuration must have loosened (or sloughed) the tumour from its bed and so rendered it capable of extrusion from the uterine cavity as a foreign body. Focal infection in the uterus may have accounted for the goitre, and it will be interesting to note if the acute sepsis from which the patient has suffered is followed by any improvement in this condition.

Dr. J. Squires has drawn attention in the *American Journal of the Medical Sciences* (September, 1920) to cases in which considerable improvement in Graves's disease followed severe focal infection.

G. C. Gell, M.R.C.S., L.R.C.P.
Ramsey, Isle of Man.

The League of Red Cross Societies, whose head quarters are at Geneva, has compiled a list of children who, early in 1918 (their parents having become alarmed for their safety), were sent from their homes in Moscow and Petrograd to the Ural Mountains. Subsequently the Government failed to transmit the sums contributed by the parents towards the children's support, and towards the end of the year the American Red Cross undertook the care of over a thousand of these children. Military and political considerations in Russia have necessitated several removals, and now 800 are being brought to Bordeaux, where they will be accommodated in barracks. Publicity is sought in order that the parents may be discovered.

Rebiews.

VAN GEHUCHTEN'S "NEUROLOGY."

Professor van Gehuchten, of the University of Louvain, was engaged in preparing for the press a systematic course of lectures in neurology when his work was rudely interrupted by the war. The first portion of the book, including text and illustrations, had already gone to press, the remainder was in manuscript.

With the help of Sir Clifford Allbutt and Sir William Osler, van Gehuchten found congenial work in Cambridge, but he had barely resumed his researches when his life was cut short in December, 1914, by cardiac failure following laparotomy for volvulus. What had happened to his book was not then known, but fortunately both the printed matter and the remainder of the text have been recovered, although the collections he had made during long years of study were destroyed when his house was burnt down by the Germans. The book was to have made its appearance in 1915, and, as has been said, the first two-thirds had been revised by the author; the last third has now been prepared for the press by his son, Dr. Paul van Gehuchten.[1]

Professor van Gehuchten intended this clinical volume on diseases of the nervous system to be complementary to the course of anatomy of the nervous system; it was written not so much for neurological specialists as for students preparing for the degree of Doctor of Medicine and for practitioners. He classified disease of the nervous system into two great groups—organic and functional. For the former he adopted an anatomical subdivision according as the disease affects the peripheral nerves, the muscles, or any part of the central nervous system, including the meninges. The functional diseases he terms neuroses.

The author's profound knowledge of the anatomy of the nervous system gives a special value to the work. Before dealing with the clinical signs and symptoms of disease of a particular part of the nervous system, he gives a clear exposition of the normal anatomy and physiology; he then discusses the physiology, pathology and etiology, and finally the symptomatology, diagnosis, prognosis and treatment. The systematic and lucid exposition of the various organic and functional diseases of the nervous system under these several headings, the description of typical clinical cases, and the excellent plan the author followed of emphasizing salient facts by italics, makes the work especially intelligible and readable for students and practitioners.

The omission of a bibliography is quite excusable, but we are of opinion that students preparing for the degree of Doctor of Medicine, and practitioners also, should know a little about the evolution of our knowledge of this department of medical science and the association of certain diseases with the names of some of the great neurologists. Throughout the work a large number of admirable diagrams are given of the anatomical relations bearing on the disease under discussion; they cannot fail to be most helpful to the student in grasping the clinical consequences of organic lesions. These diagrams have the merit of simplicity combined with scientific accuracy. There are in addition a large number of excellent photographs of patients, illustrating the objective clinical phenomena of nervous disease, together with photographs and microphotographs of the pathological anatomy.

The author did not live long enough after the sack of Louvain to see the prominent part the psycho-neuroses played in the Great War and its aftermath. Hence he does not discuss many of the important problems raised by the war regarding the causation and treatment of war psycho-neuroses. The grouping of cases of psycho-neuroses according to the views of Janet, Freud, Dejerine, and Babinski would doubtless have been compared, together with the respective values of treatment by psycho-analyses and persuasion. It would, moreover, have been interesting to have known the view Professor van Gehuchten would have taken regarding the theory of reflex contracture of Babinski that has led to so much discussion. Again, his opinion regarding the importance and significance of

[1] *Les Maladies Nerveuses.* Cours Professé à l'Université de Louvain. Par A. van Gehuchten, Professeur Ordinaire. Louvain: Librairie Universitaire. 1920. (Imp. 8vo, pp. 645; 402 figures.)

dreams in elucidating the causation of psychic trauma, and thereby the uprooting of a hidden complex causing a mental conflict in the subconscious mind, by Freud's method of "free association" or Jung's method of "word association," would have been valuable.

Had Professor van Gehuchten lived to see the wide-spread application of these methods in the treatment of the psycho-neuroses, he would doubtless have critically examined the theories and the facts, and especially interesting would have been his estimation of the value of the methods of Freud and Jung in cures which have been claimed by these two masters and their apostles.

In conclusion it may be said that while the author did not claim that these lectures are sufficient to satisfy the neurological specialist, yet there is not, in our opinion, much to be added to this admirable textbook, and we can with confidence strongly recommend it to all students and practitioners.

F. W. Mott.

A NEW TEXTBOOK OF SURGERY.

The new *Surgery*,[2] edited by Gask and Wilson, is a textbook for students written by the Surgical Staff of St. Bartholomew's Hospital. There is one exception, Mr. Spencer, and he, it may be supposed, plays godfather to the lineal descendant of his adopted child "Walsham." *Surgery* is a good book, showing but few traces of multiplicity of authorship, little or no overlapping, and a new sense of proportion. Perhaps it would be more correct to say a sense of new proportions; and let us hasten to add that we do not mean by this a reflection of the proportions prevalent in the years of war, but of those in current practice.

The word "amputation," unqualified, does not appear in the index; in the early part of the book deformities are allotted a hundred pages, or one-twelfth of the whole; diseases of the ear and eye have about seventy-five pages, which, though not the measure of the importance of these specialties, represents a fair share of attention from the student reading his first book. Mr. Ernest West and Mr. Foster Moore respectively have seen to it that the reader shall have no lacunae in his knowledge of their stretches of the field of surgery.

Mr. Gask, who had so great an experience of operative work on the chest in France, has been as self-restrained in the space he allows himself for diseases of the chest as he has been careful not to permit war-freedom to warp his judgement in peace surgery; his is an excellent article that would bear a little expansion. Much the same may be said of his section on abdominal surgery; it is concise and lucid, sound and interesting; of course, it is easy to pick holes, but not over anything that matters. For example, "well propped up with pillows" is not the Fowler position; in what percentage of cases does the tubercle bacillus reach the peritoneum "from the pleura"? is it not time that taxis was clearly indicated as a method, not of treatment, but of diagnosis? It is perhaps a pity that so many pictures of hernia are given, for they will tend to give the student a wrong idea of the importance of the truss and also of the appearance of a femoral hernia. If for no other reason than the great number of strangulated hernias in old people, Mr. Gask might have insisted even more strongly on the propriety of operation. Duodenal ulcer receives the equivalent of thirty lines. Judging by subsequent pages it would seem that he did not intend the frivolous to scoff when he wrote the paragraph on the course of appendicitis "if left alone." It will be seen that the blemishes, if so they may be termed, are trivial, and in no way likely to mislead the student seriously. Mr. Harold Wilson, the other editor, has written the section on the surgery of the urinary and male genital systems; he has done it clearly, carefully, and fully, an admirable presentment of the subject for the student. It was a felicitous choice that put the general review of venereal diseases into the hands of Sir D'Arcy Power; it is so much the fashion to run after strange chemical and instrumental gods, and to worship, more or less ignorantly, mysterious "tests," that it is just as well to allow the novice initiation at the hands of one wise in all the clinical wickedness of these maladies.

It is unnecessary to mention all the contributors by name, for every member of the general surgical staff is among them. The general level is well maintained, but there are, of course, some sections to which exception may be taken; that on haemorrhage is less successful than the majority. The definition "loss of blood which occurs when the wall of a blood vessel is penetrated or cut across" might be improved upon, for if it be comprehensive, then by the word "penetrated" is meant all that appears on the surface and a good deal more. It is said that "Simple acute arteritis occurs when an artery is wounded or contused aseptically, and is the process whereby the repair of the vessel takes place." Surely the justification for that assertion needs some special pleading. "The process [establishment of collateral circulation] may be delayed or prevented altogether by . . . venous stasis in the distal parts owing to the simultaneous occlusion of the main vein." The author had better settle this question with Sir George Makins.

Scattered through the book are a good many *obiter dicta* subversive of hitherto accepted notions, but to this we need take no serious exception, provided the examiners in surgery do not. The book is good, not too big, well printed and illustrated, and worthy of the school from which it comes.

[2] *Surgery.* A Textbook by Various Authors. Edited by George E. Gask, C.M.G., D.S.O., F.R.C.S., and Harold W. Wilson, M.S., M.B., F.R.C.S. London: J. and A. Churchill. 1920. (Roy. 8vo, pp. 1251; 467 figures, 39 plates. £2 2s. net.)

THE DUODENAL TUBE.

In his recent handbook on *The Duodenal Tube and Its Possibilities*[3] Dr. Max Einhorn of New York brings to our notice a means of investigation which has been rather neglected in this country. In America its practical applications have been recognized, especially by Dr. B. B. V. Lyon of Philadelphia, who has employed it in drainage of the gall bladder, in the treatment of catarrhal jaundice, cholecystitis and cholelithiasis. It is now eleven years since Dr. Einhorn first described the duodenal tube, as is set out in his historical sketch of its development. In principle it is an extension of the gastric tube, and by its use the contents of the duodenum can be aspirated for chemical examination. After an account of the methods of testing for the pancreatic ferments, the fractional examination of the duodenal contents, similar to the fractional examination of the gastric contents, is described. The chapter on the diagnostic import of the duodenal tube contains a coloured plate showing eight samples of the duodenal contents in various conditions—namely, health, cholelithiasis, cholecystitis, and duodenal ulcer. The therapeutic use of the duodenal tube includes (1) feeding every two hours during the day with a standard meal of milk (7 to 8 oz.), one raw egg, and a tablespoonful of lactose, the apparatus being left *in situ* in the alimentary canal for the entire period of duodenal alimentation; (2) the introduction of large quantities of fluid, as in Raynaud's disease and thrombo-angiitis obliterans, and of oxygen in severe intestinal catarrh; and (3) duodenal lavage and the instillation of various remedies, such as purgatives, protargol, or argyrol or ichthyol in chronic duodenitis and cholecystitis, and benzyl benzoate in duodenal ulcer with pylorospasm. The principle of the duodenal tube has led to the invention of a number of instruments for the investigation and treatment of the alimentary canal; several forms of pyloric dilator are figured: among them is the pyloric dilator and diaphane which has a tantalum lamp at the end so that the position can be determined by simply connecting it with a weak electric current and looking at the patient's abdomen in a dark room. The intestinal delineator consists of a thin very flexible rubber tube with two wires and a silk thread, two to three metres long, and is employed in conjunction with x rays to show the condition of the small intestine; it is withdrawn by the mouth. But another form of delineator for the whole of the intestinal tract, which is eventually passed per rectum, has been devised. There are numerous x-ray pictures illustrating these new methods of examination, and it seems probable that by their application much new information may be obtained.

[3] *The Duodenal Tube and Its Possibilities.* By Max Einhorn, M.D. Philadelphia and London: W. B. Saunders Co. 1920. (Med. 8vo., pp. 122; 51 figures. 13s. net.)

EPIDEMIC ENCEPHALITIS.

THE book by Professor FREDERICK TILNEY and Dr. HUBERT S. HOWE entitled *Epidemic Encephalitis*[4] consists of two parts dealing with two separate groups of cases, the first reported by Professor Tilney and Dr. H. A. Riley, and the second by Dr. H. S. Howe. In the first part, based on the observation of twenty cases, the authors recognize nine fairly well marked subgroups or clinical types—namely, the lethargic, the cataleptic, the paralysis agitans, the polioencephalitic, the anterior poliomyelitic, the posterior poliomyelitic, the epilepto-maniacal, the acute psychotic, and the infantile. The second part contains well-worked-up reports of eleven cases, occupying 134 pages, or more than half the volume; and in his brief concluding chapter Dr. H. S. Howe states that an extensive observation of epidemic encephalitis warrants a classification into fourteen clinical groups—namely, the lethargic, the cataleptic, the hemiplegic, the paralysis agitans, the polioencephalitic, the choreiform, the myoclonic, the multiform, the meningitic, the anterior poliomyelitic, the epilepto-maniacal, the acute psychotic, the sympathetic system, and the abortive types, of which the first eight are the most common.

These two parts are certainly complementary, and illustrate the essentially protean clinical characters of the disease, but the ordinary reader will probably regret that the authors have not combined their separate contributions into one well considered presentation of their subject. As it is stated at the end of the bibliography that the volume also includes articles on epidemic encephalitis and on special cases by Drs. F. Tilney, H. A. Riley, and H. S. Howe, which appeared in the *Neurological Bulletin* for 1919, the suspicion may arise in the reader's mind that, with some additions, the present work is mainly a reprint of these articles.

The volume is very well got up, the illustrations are successful, and there is much clinical and pathological observation; but, as already hinted, the arrangement is unsuitable, and there is some repetition. The title "epidemic encephalitis" is preferred to that of "lethargic encephalitis" on the ground that the patient and not the disease is lethargic; but on the next page the paralysis agitans type of epidemic encephalitis, to which a similar criticism might equally apply, is mentioned without any obvious qualm.

TEXTBOOKS OF OPHTHALMOLOGY.

MR. MAYOU, in the preface to the third edition of his *Diseases of the Eye*,[5] points out that the student's curriculum is already overloaded, and states that only the alterations necessary to bring the work up to date have been made in this edition. All teachers will agree with him as to the overloading of the curriculum, and students will be grateful to him for presenting the subject of diseases of the eye so clearly, in such a moderate compass. The book fits comfortably into the pocket. The subject is dealt with on conventional lines, the pathology and bacteriology being particularly well done, as was to be expected from the author's high reputation as an eye pathologist. Students will find in this little book an excellent guide to the qualifying examinations; if they need more they can consult larger textbooks. The book is one of the best on its special subject with which we are acquainted, and can be recommended with confidence.

Lieut.-Colonel F. P. MAYNARD, I.M.S.(ret.), has recently published two companion volumes on ophthalmic operations and ophthalmic practice. The *Manual of Ophthalmic Operations*[6] is the second edition of a work which appeared in 1908, and its issue has been delayed by the Great War. As a record of the practice of one who has been in a very extensive operating practice in India it is interesting and valuable. On the larger questions of cataract and glaucoma operations, the author conforms more to the practice of this country, perhaps, than to that in vogue in India. Smith's intracapsular expression is briefly described, but Maynard appears to favour the ordinary extraction, with or without iridectomy. Certain modifications of Elliot's trephining operation for glaucoma are described, but the advantages claimed for them appear to us to be theoretical rather than practical. We must confess that the impression left by a perusal of the book is that it has been written in a hurry. The author's proof-reading has been at fault; many minor mistakes in spelling—such as "cystitome" for cystotome, "Mule's" for Mules's, "Spencer Well's" for Spencer Wells's, "milk" for silk, etc.—have crept into the text, and we are sorry to see that Colonel Maynard takes a very free licence in splitting the infinitive.

The *Manual of Ophthalmic Practice*[7] is based on lectures delivered at the Medical College, Calcutta, and deals with the subject on the customary lines. The descriptions are rather superficial and are written mainly from the clinical standpoint, and pathological details are very briefly, though accurately, mentioned; this drawback is to some extent minimized by the inclusion of a large number of good illustrations borrowed from Duane's translation of Fuchs's well known *Lehrbuch*. Colonel Maynard acknowledges in his preface the presence of an occasional colloquialism, and it has always seemed to us that this is one of the drawbacks to publishing lectures much as they are delivered. The numerous coloured illustrations must have added considerably to the cost of the book, and on the whole they do not strike us as being good. It is, of course, possible that the work of the Indian artists may have suffered in reproduction, but we confess that had it not been for the letterpress under many of them we should not have known what condition they were meant to represent.

NOTES ON BOOKS.

THE demand for a fifth edition of Mr. COMYNS BERKELEY'S *Handbook of Midwifery*,[8] for midwives, maternity nurses, and obstetric dressers, within a little more than fourteen years of its first publication is testimony to its worth which makes the work of the reviewer simple. Obviously it fills a want, and when one looks into its pages its popularity is not surprising. Written with the author's usual lucidity, it contains enough but not too much. Also it is really well illustrated, and is of a size and lightness suitable for the pocket. In the present edition the sections on breast-feeding and on artificial feeding have been rewritten, and seem in all respects adequate.

Practical Hints on Minor Operations[9] is a useful and practical little book on minor surgery, which Mr. G. PERCIVAL MILLS has prepared for students and practitioners, and particularly for country practitioners who have to do their own minor operations. The book covers the field of minor surgery, but as it is intended mainly for the use of occasional operators it would have been more valuable if it could have been more fully illustrated. Such operations as, for instance, that for strangulated hernia (if it must be included in a book on minor surgery) and tracheotomy require illustration quite as much as the operation for hammer-toe. However, within the limits of its intentions, it is a work that can be recommended.

The 1920 edition of *Paton's List of Schools and Tutors*[10] has just been published. It contains the usual particulars of a very large number of schools for boys and girls throughout the country, and a selected list of Continental schools, with classified indexes. As an uncritical guide book for parents and guardians it will no doubt prove as useful as its many predecessors.

Dr. CHARLES J. WHITBY of Bath has contributed to a series of small books one to which he gives the title

[4] *Epidemic Encephalitis [Encephalitis Lethargica]*. By Frederick Tilney, M.D., Ph.D., Professor of Neurology, Columbia University, and Hubert S. Howe, M.D., Instructor in Neurology, Columbia University. New York: Paul B. Hoeber. 1920. (Demy 8vo, pp. 270; 58 figures. 3.50 dols.)

[5] *Diseases of the Eye*. By M. Stephen Mayou. Third edition. Oxford Medical Manuals. London: Henry Frowde, and Hodder and Stoughton. 1920. (Cr. 8vo, pp. xv + 326; 146 figures, 5 plates. 10s. 6d. net.)

[6] *Manual of Ophthalmic Operations*. By F. P. Maynard. Calcutta and Simla: Thacker, Spink, and Co. Edinburgh: E and S. Livingstone. 1920. Second edition. (Roy. 8vo. pp. xix+248; 6 stereoscopic plates, 135 figures. 21s. net.)

[7] *Manual of Ophthalmic Practice*. By F. P. Maynard. Calcutta and Simla: Thacker, Spink, and Co. Edinburgh: E. and S. Livingstone. 1920. (Roy. 8vo. pp. xxi+315; 12 coloured plates, 131 figures. 25s. net.)

[8] *A Handbook of Midwifery*. For Midwives, Maternity Nurses, and Obstetric Dressers. By Comyns Berkeley, M.A., M.D., F.R.C.P., M.R.C.S. Fifth edition, enlarged. London: Cassell and Co., Ltd. 1920. (Fcap. 8vo, pp. xv + 550; 75 figures. 7s 6d. net.)

[9] *Practical Hints on Minor Operations*. By G. Percival Mills, F.R.C.S. Birmingham: Cornish Brothers, Ltd. 1920. (Pp. 111. 5s. net.)

[10] *Paton's List of Schools and Tutors*. Twenty-third annual edition. London: J. and J. Paton. 1920. (5s. net.)

Captain-Jewels.[11] It may fairly be described as a commonplace book, containing seven hundred entries arranged under a dozen different heads; but it is a commonplace book of a rather unusual kind, inasmuch as the author's choice is eclectic, and while he does not neglect such well known makers of aphorisms as Samuel Johnson and La Rochefoucauld, he finds his quarry also in men of action such as Napoleon, exotic philosophers such as Lao Tzu, and a whole host of modern writers and novelists from Meredith to Locke. One of the aphorisms from Johnson is "A man ought to read just as inclination leads him, for what he reads as a task will do him little good," and Dr. Whitby's selection may serve not only to fill spare moments but also to suggest new lines of reading for mental refreshment.

[11] *Captain-Jewels*. Seven Hundred Aphorisms gathered and strung together by Charles J. Whitby, M D. London: George Harrap and Co., Ltd. (Fcap. 8vo, pp. 207. 2s. 6d. net.)

PUBLIC HEALTH, 1919–20.

As was announced in our last issue, the first annual report[1] of the chief medical officer of the Ministry of Health, Sir George Newman, has been presented to Parliament. Sir George Newman's account of the organization of medical work within the Ministry, and of its co-ordination with other departments, has to a large extent been summarized in our report, given on October 23rd (p. 635), of his Hunterian Lecture.

The chief medical officer's introduction is followed by a series of articles from the several departments of the Ministry—namely, on general health and epidemiology, by Dr. G. S. Buchanan; on maternity and child welfare, by Dr. Janet Campbell; on tuberculosis and venereal disease, by Dr. F. J. H. Coutts; on the supervision of food supplies, by Dr. A. W. J. MacFadden; on general practitioners' services, by Mr. Smith Whitaker; and on sanitary administration in relation to infectious disease, by Dr. R. J. Reece.

In his introduction Sir George Newman states that the intention is to prefix to each annual report a general outline and review of the health of the English people as a whole during the year. In this volume he dwells on the magnitude of the organization to be set up by the Ministry and on the deliberation with which it must move. The success of its working, he points out, can be judged only over a long period of time, and its success depends not only on the central supervising department, but on local authorities, on voluntary agencies, on an education of public opinion in health matters, and on the co-operation of the medical practitioner, who is "the instrument, the outpost, the interpreter . . . an integral and active force in the physical well-being of the nation."

In the review of the vital statistics for 1919 it is pointed out that the steady decline of the death rate, which previously to the nineties of last century (apart from infant mortality) chiefly affected the lower ages, has more recently been due in part to diminished mortality in the middle years of life. The decline of infantile mortality is attributed to improved sanitation, and maternal and infant welfare work; during the last twenty years the decline has most noticeably affected infants older than three months, and has been chiefly due to diminished deaths from diarrhoeal and respiratory diseases.

The Services of the Medical Practitioner.

Sir George Newman observes that the creation of a Ministry of Health and the inclusion in it of the National Health Insurance Commission established a new relation between state medicine and the general medical practitioner, who must become an integral part of the national organization of preventive medicine. It will neither "abolish" him nor absorb him into a whole-time national service. It will provide him with opportunity in the public service instead of excluding him or creating a practitioner service of whole-time medical officers. The practitioner must be adequately trained in preventive as well as curative medicine, and must maintain freedom of individual action in the practice of his profession and in his relations with his patients. Progress has been made during the year with machinery for securing this end; convenient regulations were issued for insurance practitioners, the scale of remuneration was improved, revised record cards were introduced, and a considerable number of whole time medical officers appointed under the Ministry to act as medical referees. The Health Insurance scheme of medical practice comprises 12,000,000 patients in England and Wales and 12,000 medical practitioners. In relation to medical services close attention has been given to the whole question of hospitals, as follows:

> Adequacy in accommodation and character, location, decentralization; co-operative working; medical staff; its relation to general and insurance practice; methods of financial support, whether out of rates and taxes, or by means of voluntary contributions, or both; the interrelation of hospitals, clinics, and convalescent homes; relation to the specialized services of the State (maternity and child welfare, tuberculosis, venereal disease, etc.); the problem of the waiting list; the recognition of sociological factors; provision for paying patients; records; the reorganization of after-care; the paramount importance of the out-patient department in the detection of the beginnings of disease, correct diagnosis, the classification of disease, and prognosis; investigation of disease by individuals or groups of workers; the training and education of the medical student; the training of nurses and midwives.

Maternity and Child Welfare.

A scheme has now been inaugurated in every county (with one exception) and county borough, and in many of the larger urban districts. On March 31st, 1920, there were in existence 1,754 maternity and child welfare centres, 221 day nurseries or crèches, and 89 maternity homes, with 1,360 beds. The total number of health visitors increased in 1920 from 3,074 to 3,359, of whom 350 were employed by voluntary societies, and 3,009 (comprising 877 whole-time and 1,002 part-time workers, together with 1,130 district nurses) by local authorities. The grants paid to local authorities and voluntary bodies in connexion with maternity and child welfare amounted to £526,217. It is recognized that these services are still inadequate, and that persistent efforts are called for in every district in order that puerperal, fetal, and infant mortality, as well as the incidence of ophthalmia neonatorum and many other preventable infantile diseases, may be diminished. Few authorities have made serious attempts to deal with ophthalmia neonatorum, measles, whooping-cough, epidemic diarrhoea, and poliomyelitis, although the Ministry is empowered to make grants in aid of nursing and treatment of these conditions. It is recorded that at St. Margaret's Hospital, established by the Metropolitan Asylums Board for the treatment of ophthalmia neonatorum, among 372 babies admitted, 85 eyes were already ulcerated; 28 had already perforated, and 33 perforated later.

Infectious Diseases.

Typhus Fever and Cholera.

The Ministry has been fully alive to the dangers of introduction into this country of typhus or of cholera. Dr. G. S. Buchanan visited Poland as a member of an international committee of medical men investigating the typhus outbreak, which is likely to continue and increase during the ensuing winter. Subsequently an international conference of health experts was organized by the Ministry at the request of the Council of the League of Nations. Funds are now being sought for the carrying out of the recommendations of the conference; these include equipment of hospitals and disinfection stations, fixed and mobile, within the epidemic areas and along the main lines of approach to Poland. In Great Britain recent orders require immediate notification to the Ministry, and place special duties of inspection and disinfection on port sanitary authorities.[2] The introduction during 1919 of typhus into Holland, where it was extinguished with difficulty, shows that even adequately fed and comparatively clean communities require to take special precautionary measures against typhus. An important starting point of European outbreaks of cholera has been the dispersal of pilgrims from the Arabian holy places: in view of the resumption in 1919 of the pilgrimages to Mecca, one of the medical officers of the Ministry visited the Red Sea and reported on the existing sanitary stations on the main pilgrim routes. As a consequence it was possible temporarily to secure adequate preventive measures, but the position is said still to be dangerous.

[1] Cmd. 978. Price 3s. 6d. net.

[2] British Medical Journal, August 14th, 1920, p. 255.

Influenza and Encephalitis Lethargica.

The account given in the concluding report of the Medical Department of the Local Government Board [8] of the influenza epidemic of 1918–19 is supplemented by particulars of the recrudescence which occurred in the early months of 1920; although of slight proportions in Great Britain, it was comparatively severe in Poland, Austria, and the United States. An account is given of the precautionary measures taken by the Ministry in this country and of inquiries made into certain localized outbreaks. A separate volume dealing with the whole pandemic is being prepared. It is reported that in Italy nearly 4,000 cases of encephalitis lethargica (with 1,013 deaths) and in France 321 cases (100 fatal) have occurred; this disease has also been reported in Austria, Belgium, Germany, Greece, Holland, Norway, Poland, Portugal, Spain, Switzerland, India, Canada, New Zealand, North Africa, the Argentine, Peru, and Uruguay. During 1919, 524 cases occurred in England—87 in London, 368 in urban and 69 in rural districts; in the current year up to May somewhat larger numbers have been reported. The period of maximal seasonal prevalence, in contrast with that of poliomyelitis, is the winter months. A report, by Dr. McNalty, on an outbreak of encephalitis lethargica in a girls' school at Derby, is given in an appendix; Professor McIntosh, using a filtered emulsion of cerebral tissue from the first case, succeeded in transmitting a fatal lethargic illness to a monkey, the brain of which exhibited lesions similar to those found in human cases.

Dysentery: Malaria: Plague: Rabies.

From the reports of the medical officers of health who followed up the dysentery carriers discharged from the army, it appears that these men should not, in the conditions prevalent in this country, constitute a danger to others; in the year ending March 31st, 1920, their numbers were 782 amoebic as against 26 bacillary carriers. The total number of indigenous cases of malaria known at the end of 1919 was 433, of which 231 were discovered in 1917, 99 in 1918, and 103 in 1919. Of the last-named group, 38 were detected in the Isle of Sheppey, and 37 in the Isle of Grain. In these districts, where, as is well known, there are old-standing endemic areas, medical men have been appointed by the local authority to act as malaria officers under the Ministry's regulations. Several of the new cases, especially those occurring in children, might soon have been fatal, it is believed, had they not been promptly diagnosed and treated with quinine. During 1919, seven plague-infected ships put into British ports, and cases of plague occurred on three vessels on their outward voyage. In an appendix Dr. R. J. Reece describes the circumstances which favour the introduction of plague into this country, and the precautions which can be taken to avoid it. In another appendix Sir David Semple summarizes the history, pathology, and treatment of rabies, and describes the treatment of forty persons at local centres in England by the carbolized vaccine method; this has the advantage of doing away with the necessity for special Pasteur institutes, the vaccine being easily prepared by any skilled bacteriologist who has adequate laboratory equipment. Dr. S. Monckton Compton contributes an account, illustrated by photographs, of the characters of an outbreak of "alastrim" which occurred on the borders of Suffolk and Norfolk during 1919.

Tuberculosis.

The provision of treatment for tuberculosis increased during 1919–20. At the end of March, 1920, there were 388 residential institutions, 190 provided by local authorities and 198 by voluntary bodies. The total number of beds available in these institutions was 15,781, an increase of 2,258 on those in existence at the end of March, 1919; of the new beds, 1,807 were provided by local authorities. Tuberculosis dispensaries increased during the year from 383 to 398, of which 362 were provided by local authorities. The Treasury, acting on the recommendations of the Barlow Committee, consented to increase the capital contributions towards additional sanatorium accommodation, and local authorities by March 31st, 1920, had submitted proposals for the provision of 7,845 additional beds. By the same date preliminary arrangements had been made for the provision of occupational training, in colonies connected with sanatoriums, for 850 tuberculous ex-service men; those only are considered suitable who have undergone a preliminary course of sanatorium treatment, are afebrile, and are capable of doing at least four hours' work a day under medical supervision. The Ministry is communicating with the Treasury on the question of financial assistance for the provision of village settlements, and has under consideration schemes for the provision of industrial settlements, providing sheltered conditions of work for men living in their own homes and districts, at Wimbledon and Greenwich.

Venereal Diseases.

Venereal disease schemes have been approved for 61 counties and 78 county boroughs in England and Wales, and for the City of London; the population of these areas is about 36 millions. There are now 176 clinics for diagnosis and treatment; attendances in 1919 numbered 1,000,300, and there were 98,000 new patients, of whom 42,000 suffered from syphilis. Roughly, these figures are double those of the previous year; the increase may well be due to the increased efficiency of the clinics, and their greater appreciation by the public. The report quotes a description by Colonel Harrison of the clinic at St. Thomas's Hospital, and a plan is given which indicates how army huts may be converted for the purpose of venereal disease work. In an account of the disinfection station provided as an experiment in Manchester, it is stated that the place is open at all hours of the day and night; three specially trained attendants work under the supervision of a medical officer. During three months 925 persons attended; of these, 635 came within three hours after exposure, 22 between three and six hours after, and 51 more than six hours after; it was found that 217 were already suffering from venereal disease.

International Hygiene.

In a section dealing with imperial and international hygiene, Sir George Newman points out how responsibilities have been increased of late years by the development of world-wide intercommunication, by the growth of British overseas commerce, and by the progress of our knowledge of exotic diseases; latterly these responsibilities have been emphasized by the expansion of the Red Cross Societies during the war, and the emergence of a League of Nations. Articles 23, 24, and 25 of the Covenant of the League of Nations bind the members to take steps in matters of international concern for the prevention and control of disease, and to encourage the activities of voluntary national Red Cross Societies; they provide also that existing and prospective international health bureaux should be placed under the direction of the League. The English Health Minister and his officers have participated in two important international conferences, the second of which, held in April, 1920, drew up a scheme which was designed to provide a general commission, a permanent committee, and a general medical secretariat (International Health Bureau). These organizations will complete and revise the existing conventions, advise the League on matters of public health, and establish co-operation between States; in association with the Red Cross they will organize scientific missions.

[8] British Medical Journal, January 31st, 1920, p. 164.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

A conference of representatives from countries included in the League of Nations and from the United States of America was held in Paris from October 17th to 21st for the purpose of forming an International Union against Tuberculosis, which will continue the work of the old international association that existed prior to the war. The British representatives were Sir Robert Philip, representing the National Association for the Prevention of Tuberculosis and the Ministry of Pensions, Dr. Nathan Raw (National Association), and Dr. Halliday Sutherland (Ministry of Pensions). The president of the conference was Professor Léon Bourgeois (Paris).

The first meeting was held in the grand amphitheatre of the Sorbonne on the afternoon of October 17th, when the Minister of Hygiene presided over an audience which numbered over 3,000 people. On behalf of the French

Government the Minister, M. BRETON, extended a c o dil welcome to the international delegates, and thereafter invited Sir Robert Philip to deliver the opening address.

Sir ROBERT PHILIP, who spoke in French, welcomed the presence of the Minister of Public Health at the renaissance of an international organization for the prevention of tuberculosis. Having dealt with the problem of infection, he said that there was much in favour of the suggestion that if, after infection, the environment of the individual remained healthy, his natural resistance would be sufficient to overcome the infection. The ideal of healthy surroundings was seldom realized, partly through ignorance, and partly owing to various forces which influenced modern life. There were many factors definitely unfavourable to establishing an effective resistance against infection. In one sense it was right to say of an individual that once tuberculous always tuberculous. If the most accurate diagnostic methods were applied to those present, the majority would be found to have been infected. But the very fact that they had survived this infection was proof of the power of natural resistance and of the influence of a healthy environment. The knowledge that the ultimate results of infection in any individual are largely governed by his state of resistance to infection has entirely changed the outlook of modern medicine on this disease, both as regards its treatment and prevention. The tuberculous patient was now treated as the victim of a specific infection which, arising as a local lesion, tends to have a toxic influence on every system of the body. The local lesion was merely an incident in the course of the disease, which, once established, was apt to make its malign influence felt for months or years, or maybe for a lifetime. This showed the necessity for prolonged supervision in the treatment of the malady. Cases should be under medical supervision until it was reasonably certain that the disease had been arrested.

In regard to prognosis the attitude of medicine had also changed. Hippocrates placed "phthisis" first in the list of fatal diseases, but "phthisis," as known to Hippocrates, represented the last stage of infection in an individual whose resistance had been overcome. To-day we sought for those first and early symptoms and physical signs which accompanied the slow and gradual change from health to disease. The known facts warranted the statement that tuberculosis was easily curable when diagnosed in time. On these grounds the ultimate aim of the conference and of the international movement which it represented could be nothing less than the passing of tuberculosis from the list of diseases which entail death or prolonged suffering. In the light of scientific facts they had a right to expect the detuberculization of the world. The sooner the various forces in social life were ranged beside them in this war, the sooner would victory come.

Diagnostic Methods.

A medical session was held at the Faculty of Medicine on October 18th, at which the clinical diagnosis of tuberculosis was discussed. Dr. RÉNON presented the Report of the French Scientific Commission, to which the leading French clinicians had contributed. The report was a *précis* of eight papers, which will be published in the *Transactions* of the conference. As the only certain sign of tuberculosis was the tubercle bacillus, every effort should be made to demonstrate its presence in sputum. When sputum was scanty the amount could be increased by exhibiting potassium iodide in conjunction with the white oxide of antimony. Sputum should be made homogeneous by boiling with soda, and the centrifuged deposit examined. When these methods gave persistent negative results a guinea-pig should be inoculated. Dr. ANTONIO ESPINA Y CAPO (Spain) advocated the establishment of laboratories for the special study of tuberculosis in all large cities, and that the sputum in all cases of catarrhal diseases of the respiratory system, especially in old people, should be examined. Dr. CHARLES MINOR (United States of America) presented a report on the methods of diagnosis in vogue throughout America, and urged that the early signs of tuberculosis should be better recognized. Dr. HALLIDAY SUTHERLAND said that so long as mankind lived under conditions which bred tuberculosis, the key to its eradication lay in early and accurate diagnosis. Even if every nation were equipped with the complete co-ordinated system, the disease would continue unless individual cases were recognized before infection had been spread. A most valuable sign was to be obtained from the subcutaneous tuberculin reaction when judiciously used and interpreted. Dr. BACHMANN (Switzerland) regarded the specific reactions of von Pirquet, Mantoux, and Calmette as of value in determining the presence of infection as distinct from active disease in the body.

On October 19th, at the second scientific session, the question of tuberculosis as a social problem was discussed. The report on the work in Great Britain was presented by Sir ROBERT PHILIP, who the same evening gave a popular address in French at a meeting at the "Cinema Select" under the auspices of the Rockefeller Commission for the Prevention of Tuberculosis in France.

The next meeting of the International Union against Tuberculosis will be held in London in 1921.

CALL TO THE BAR.

FROM time to time we receive inquiries as to the steps which must be taken in order to become a barrister, and the subject may therefore be of sufficient interest to members of the medical profession to warrant a general statement.

The first preliminary is to become a member of one of the four Inns of Court, and in order to do this the candidate must either pass a simple general examination in English subjects, or be a graduate of one of the universities in the British Dominions, or have passed one of certain public examinations such as Responsions at Oxford, the Cambridge Little Go, or the London Matriculation. He must also procure certificates of good character from two responsible persons, and sign a form of declaration as to his qualification to be a member of an Inn of Court—briefly, that he is not engaged in certain occupations such as those of a solicitor, clerk of the peace, surveyor, or in trade, and is not an undischarged bankrupt. These must be produced to the under treasurer of the Inn to which admission is sought.

One other thing is necessary, and that is the payment of fees. These vary slightly at the four Inns, but the fees payable at the Inner Temple may serve as a guide. They are:

	£	s.	d.
Inland revenue stamps	25	1	3
Admission fee	21	0	0
Lecture fee	5	5	0
	£51	6	3

Two deposits, of £100 and £50, are also required. Graduates or members of a British university are, however, excused the first, and a bond with two sureties may be offered in lieu of the second.

Apart from the slight difference in the fees payable at the Inns the choice of Inn is of little consequence. For those intending ultimately to practise at the Bar it is probably of advantage to become members of Lincoln's Inn for Chancery work, or of the Inner or Middle Temple for Common Law work. Gray's Inn fees are, however, the lowest.

Having joined an Inn, the rest consists in keeping the necessary number of terms and passing examinations. The first is simple. A term consists of a certain number of days, and keeping a term consists merely in dining in the Hall of the Inn on any six evenings during that period; a university member is let off with only three. There are four terms in every year, and before his call to the Bar the student must have kept twelve terms in this way.

Dues amounting, in the case of the Inner Temple, to 6s. 3d. are payable each term until call, and commons amounting to £1 2s. in respect of each of the twelve terms kept. The examinations fall into two parts:

Part I consists of papers in Roman law, constitutional law and legal history, criminal law, and real property. These papers may be taken either consecutively or at separate times as the student wishes.

Part II is the final examination, and consists of papers, which must be taken consecutively, in common law, equity, evidence, and a general paper.

Examination fees are payable—10s. 6d. for each section of Part I and £1 1s. for Part II.

The student, having passed his examinations and kept the necessary number of terms, is now ready for his call to the Bar. This involves the making of a further declaration and the payment of more fees. The latter, at the Inner Temple, are as follows:

Inland Revenue stamp	£50
Call fee	50
Composition fees	12
	£112

The "call" itself consists in the student being introduced by one of the Benchers of his Inn on a fixed night during term to the Bench of the Inn assembled after "Hall," a short address by the Treasurer, the drinking of a toast, and it is over.

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SATURDAY, NOVEMBER 6TH, 1920.

PREVENTION IN DOMESTIC PRACTICE.

THE first annual report of the Chief Medical Officer to the Ministry of Health will be read in the expectation of finding not so much a record of achievement as indications of the aims of those responsible for the conduct of that department and of the machinery devised for carrying out the work. Sir George Newman is no doubt right when he says that the Ministry has suffered from injudicious friends who have shown a disposition to expect too much, forgetting that it is in fact a reform in central health government — an improvement, that is, in the machinery of government, and therefore a means, not an end. It does not solve, and was not meant to solve, problems of local self-government, and it cannot be a substitute for medical science or for an enlightened public opinion and a national health conscience. If we ask what the Ministry is, the answer will be that it is, in the first place, an intelligence department possessing special facilities for gathering information both at home and abroad; it receives returns and reports from British consular agents through the Foreign Office, and on public health legislation and international conventions through the Office International d'Hygiène Publique, on which this country is ably represented by Dr. G. S. Buchanan, the senior medical officer of the Ministry's department of general health and epidemiology. The office will eventually become a part of the international health organization of the League of Nations. The Ministry has its home sources of information in the returns of the Registrar-General and in the reports of medical officers of health and school medical officers.

As will be gathered from the extended notice at p. 706, much of the time and energy of the Medical Department and its officers have been occupied with the investigation of infectious diseases, at home and abroad. This was of course inevitable, but the striking feature of the report, and one in which it differs from the annual reports issued by the Medical Department of the Local Government Board, is the prominence given to the services rendered by the medical practitioner. Sir George Newman gives the section in which he deals with this matter an early place in his report. "The professional foundation of any medical service," he says, "must be the medical practitioner, but he can only make his full contribution if he be adequately trained in preventive as well as curative medicine, if the necessary equipment for effective practice be available, and if he be in possession of that freedom of individual action in relation to the practice of his profession which is necessary to its proper fulfilment. There must always be a full recognition of this relation, which must obtain between doctor and patient if the unique value of the medical practitioner is to be maintained." The Ministry has sought to facilitate the attainment of this result by making more convenient regulations for insurance practitioners, by improving the scale of their remuneration, by simplifying records, and by appointing thirty-five whole-time special medical officers to act as medical referees to assist in the working of the system.

We should have been glad to have had a clearer definition of the nature of the practitioner's various duties under the heading "prevention." No one will deny the proposition that curative and preventive medicine are inseparable, but the statement that "in a large degree prevention is cure and cure is prevention" is a hard saying. The Ministry believes that the full value of the scheme of medical treatment it has in mind will not be obtained unless the medical practitioner, in addition to being "an agent of treatment of obvious disease," also recognizes the beginning of disease, treats it effectually in its early stages, and becomes an exponent or missionary of personal hygiene in its preventive aspects. If this is to be taken as a definition of the preventive work of the family practitioner no one will disagree, but it does not carry us very far, for every practitioner worth his salt has always been a missionary of domestic hygiene. While most of us will be disposed to accept Sir James Mackenzie's doctrine that the study of the beginnings of disease is the principal concern of medicine at the present time, those who have given most thought to the subject will best realize the very great difficulty of the task. To fulfil it, Sir George Newman says, there must be improved education, undergraduate and graduate, and an extension of facilities for diagnosis and treatment—clinics, hospitals, and provision for after-care. All this is no doubt true. Such facilities are essential if medicine is to make progress along the old lines which have brought us so far—brought us, indeed, to the point where we recognize that for prevention we must begin earlier. If it has cost so much labour to bring the art of diagnosis of developed disease to its present excellence, how much more laborious will it not be to devise a system of anticipatory diagnosis? The methods by which this new inquiry must be pursued are not yet developed; Sir James Mackenzie and his staff at St. Andrews are working at them, but it must be long before they can be brought to perfection, even were his staff to be trebled.

Meanwhile we must be content to polish the weapons we have, and we are told in this report that the Ministry of Health has given much time and labour to the provision of more clinics and hospital beds, and to the relation of the State with their establishment and maintenance. Reference is made to the report of the Consultative Council on the future provision of medical and allied services, but no intimation is given of what scheme the Ministry favours, and it is perhaps too soon to expect such definite information in the report of the first year's working. The Ministry, as its chief medical officer says, is a complex piece of machinery, which can be judged only by its working over a long period of time. Moreover, it is but one element of an organized scheme for the national health, the others being local authorities, voluntary agencies, and an educated people "willing and able to practise the way of health." To these four factors is to be added a fifth—the medical practitioner—"the instrument, the outpost, the interpreter. Upon him the State has been steadily imposing for many years specific duties in regard to the communal health, though it has been slow to associate him closely with its operations." One of the principal objects of the Ministry of Health is, we are assured, to secure his co-operation as an integral and active force in the physical well-being of the nation.

FOUNDERS OF NAVAL HYGIENE.

IN a scholarly historical article with the title "The Founders of Naval Hygiene," Captain J. S. Taylor,[1] of the United States Navy Medical Corps, describes the lives and labours on behalf of the British Navy of James Lind (1716–1794), Thomas Trotter (1760–1832), and Sir Gilbert Blane (1749–1834), with many quotations from their works. He speaks of them as tireless leaders in a noble cause, struggling against stupidity, ignorance, prejudice, and indifference in high places and low, the Admiralty and the forecastle, to break down the immemorial custom of a hierarchy as soul-chilling and iron-bound as any Brahmin caste. They were all three eminently practical and at the same time cultivated and erudite, thus furnishing a splendid refutation of the modern view that great learning, especially of the classical type, militates against practical accomplishment. Lind was the pioneer with a genius for observation and deduction, but did not live to reap the fruits of his labours and had the vexation of seeing others win the rewards to which he was entitled.

Sir Gilbert Blane had tact, patience, and the happy faculty of producing a pleasing impression, and so succeeded both in realizing many of the reforms he advocated and in attaining high honours in the profession and a baronetcy. Trotter, the most interesting of the three, was certainly their equal in ability, but his wit, satire, and bitterness were ill calculated to win the favour of his executive superiors, and hence, though his writings seem convincing to the reader of a later century, it is not surprising that he often failed to obtain help and satisfactory co-operation from his contemporaries. Blane's career is a good illustration of the value of diversified types of men in every organization. Lind and Trotter were perhaps more original, and the latter showed a noble readiness to suffer for his "beloved navy," but it is obvious to every reader of his writings that Blane attained success not only through his "external graces" and "artificial attractions," but because of conspicuous merit; and it was his influence that made the labours of his predecessors and contemporaries available for the benefit of the sick of the service. Special credit is due to him for insisting that no naval organization can have any noteworthy success in health conservation so long as the subject is left to the discretion of individual commanders, some of whom may be zealous but ignorant, while too many are quite indifferent; and he struck the keynote of the naval surgeon's duties in the words, "My object has been prevention as much as cure."

James Lind, who was the apostle and not the originator of the treatment of scurvy by lemon and orange juice, first began the experiment which convinced him of the best treatment to pursue in May, 1747, while at sea in the *Salisbury*, but it was not till 1795, a year after Lind's death, that an Admiralty order, due to Blane's initiative, made the use of lemon juice official. Though commonly accepted as the first writer on tropical diseases on account of his *Essay on Diseases of Europeans in Hot Climates* (1768), of which five editions were published in his lifetime, Lind was long antedated by the treatise of "G. W." on *The curing of hot diseases incident to Traveilers in long and southerne voyages*. As Dr. Charles Singer has shown, the author, at first spoken of as George Wateson, was George Whetstone (circa 1544–1600), a typical Elizabethan poet and gallant without medical training, who bettered the carelessness of those spacious times by spelling his own name in three different ways in the same book.

Thomas Trotter, like the other two a native of Scotland, was the most versatile of the three, had a vigorous and pointed style, lacking the elegance and simple charm of Blane's writings, and was quite fearless in his criticism of the Admiralty and of the Government. He insisted on ventilation, on the need for proper hygiene in ships and hospitals, on the evils of the press-gang, on the need for compulsory vaccination, on the suppression of alcoholism, and on other reforms now happily accomplished. As a most interesting footnote to the history of naval medicine Captain Taylor's essay has the highest claim.

[1] J. S. Taylor, *United States Naval Medical Bulletin*, Washington, 1920, xiv, 563–628.

ALCOHOL, FATIGUE, AND MENTAL ACTIVITY.

THE Medical Research Council has published a third memoir[1] dealing with experimental investigations of the influence of alcohol on mental activities. The experiments recorded were performed at the Psychological Laboratory, Oxford, by Dr. William McDougall, F.R.S., and Miss May Smith, M.A.; some of them dealt with the action of chloroform, opium, strychnine, and caffeine, but we confine ourselves here to a description of those concerning alcohol. These investigations, like Dr. Vernon's experiments, described in our issue of October 23rd (p. 638), are open to the criticism that they were made on two subjects only; against this must be set the fact that the writers, following Dr. Rivers's example, disguised the drugs taken and employed control mixtures indistinguishable from them, so that it was possible to eliminate any suggestion which might arise from knowledge as to which drug (if any) was being taken. Three methods of measurement of the effects of drugs were employed. The first test was the marking (by a pen) of red circles, and (by a mechanical device) of blue circles, printed on a continuous band of paper tape, which was made to pass at the rate of 5.8 circles a second behind a window in the top of a desk. In the second test the subject was required to reproduce verbally in correct sequence a complete list of forty words previously dictated to him at the rate of thirty a minute; each pair of words had some association, the appreciation and recollection of which formed an important part of the mental test—for example, mountain, plain, ugly, beauty, Venus, Greece, oil, smooth, etc. In one series of experiments the first and second tests were combined. The third test was the counting of the rate of reversal of the apparent direction of rotation of the shadow of a laboratory "windmill." Dr. McDougall has previously shown that an observer has a certain power of favouring one or other phase of such an alternating perception, of which the ambiguous cube and staircase figures are more familiar examples. For the purpose of the present study the plan was adopted of holding fast each phase for the longest possible period, and when in spite of the mental effort the direction changed, of endeavouring to maintain the new phase. Using the "dotting machine," Dr. McDougall and Miss Smith found that absolute alcohol mixed with water increased the mean number of errors from 80 to 97 when 10 c.cm. had been swallowed, from 77 to 109 after 15 c.cm., and from 70 to 97 after 20 c.cm. Similarly, the ingestion of alcohol was followed in memory tests (although here the experiments were fewer) by a well marked loss of power of recall, and in the windmill tests, which appeared to afford a specially delicate index, by a striking reduction in the number of phase alternations, which was taken to denote a raised resistance of the cerebral synapses. It will cause no surprise to learn that the taking of alcohol was followed in all the tests by a subjective feeling of greater ease—in the "dotting

[1] The Effects of Alcohol and some other Drugs during Normal and Fatigued Conditions. H.M. Stationery Office, 1920, 1s. net.

test," for example, by a "pleasing conviction" (later found to be erroneous) that the work done was unusually good. Experiments were also undertaken to determine the effect of different dilutions of alcohol and of variations in the period which had intervened between its ingestion and that of a meal. In one set of experiments the errors increased 160 per cent. after taking 20 c.cm. alcohol in 33 per cent. solution, compared with 22 per cent. after taking the same amount in 10 per cent. solution. When 30 c.cm. of alcohol diluted to 60 c.cm. was taken directly after a meal, the increase of errors was 6 per cent.; the same dose taken from two to eleven hours after a meal was followed by an increase of errors amounting to 118 per cent. These results are in accord with those recently published by Dr. Vernon. It appears, however, that in one specially limited and sharply defined set of circumstances alcohol may exert a beneficial effect on mental activity. Using the "dotting machine," these investigators, in the course of an examination of the fatigue which ensues from a voluntary cutting down (for three nights) of the usual amount of sleep, found that during the first three days the average errors became fewer; during the succeeding thirteen days the errors gradually rose to a number considerably higher than normal, the return to normal being somewhat irregular. In the first two phases of this cycle the increase in the number of errors following an ingestion of alcohol was well marked; towards the end of the fatigue cycle, however (on the thirteenth and fourteenth days, for example), the number of mistakes made was considerably diminished after 15 c.cm. of alcohol had been taken. Similar results, which could be shown not to be due to habituation to the drug, were obtained in experiments in which the memory test was employed. In examining the effect of alcohol in the normal, non-fatigued state, a few instances were encountered in which a decrease in the number of errors followed the taking of alcohol; in these cases, with one exception, the statement (recorded before the test) of subjective feeling was to the effect that the experimenter felt "very tired." In certain stages of recovery from fatigue the taking of alcohol would therefore appear to be followed by an increased mental activity, as illustrated by these tests. The writers suggest that if these results are not purely personal, "then probably one reason for the very uncertain and contradictory results that investigators record with alcohol is the varying condition of the body with regard to fatigue."

SPECIALISTS IN OTO-LARYNGOLOGY.

It was found during the war, in the American army, that there was difficulty in providing oto-laryngological specialists of the same standard as in other departments of medicine, and a committee was formed, representing the American Medical Association and all the oto-laryngological societies of North America, to investigate the question of the special education of oto-laryngologists. This committee, which sat under the chairmanship of Dr. D. J. Gibb Wishart of Toronto, has recommended a minimum curriculum for oto-laryngologists. It proposes that a candidate should have practised, after qualification, for four years or have acted as a resident house-surgeon or house-physician in a first-class general hospital for at least one year; that he should then spend six to nine months in post-graduate study in anatomy, pathology, operative surgery, neurology, etc., in their bearing on diseases of the ear, nose, and throat, with the remainder of the day during this period spent in an ear, nose, and throat out-patient clinic; that subsequently he should spend not less than sixteen months as house-surgeon in the ear, nose, and throat department of a recognized hospital; and that it is desirable that he should further pursue special study at home or abroad. Possibly, as the general standard of those claiming to be oto-laryngological specialists appears to have been somewhat low, the number of oto-laryngologists demanded in the American army may have been proportionately greater than in the British, for there is no doubt that in this country the standard of the specialist in oto-laryngology is not beneath any other branch of medicine, but the suggestion of a special qualification in the subject, obtained after a recognized curriculum, is one that is worthy of notice. Judging from the leading oto-laryngologists in this country, there appears to be no one qualification recognized as essential, as is, for instance, the F.R.C.S. in general surgery or the D.P.H. in public health. A very usual special qualification appears to be the F.R.C.S. of Edinburgh, in which, we believe, ear, nose, and throat surgery may be taken as the special subject instead of the more usual one of operative surgery; but many well-known oto-laryngologists of lengthy specialized education and wide experience hold no special qualification that shows this, although their position in their own branch of the profession speaks for itself. Junior specialists, however, have felt the need for a special diploma, to be obtained after a prescribed curriculum. In this country such diplomas are now given in public health, in psychiatry, in ophthalmology, in tropical medicine and hygiene, and in radiology. The propriety of instituting other certificates on similar lines is, we believe, under consideration by some of the licensing authorities. If any extension is sanctioned we do not doubt that the claim of oto-laryngologists will receive recognition.

DANCES, DRILL, AND GAMES FOR CHILDREN.

There have been many regrets at the loss of the old English village games and dances, and truly their loss is a matter for sorrow. There is too little of the picturesque in life; and modern life, whether in village or town, might well be made more beautiful by the revival of some form of everyday pageantry. But there is growing up in the great elementary schools of the country a new form of game and dance which is as full of vitality as any of the old Morris dances—perhaps it is more full of life, for these new games and dances bring more performers into its sway than ever did the old-world dance. To those who would wish to enjoy one of the prettiest sights in our country of to-day we commend a visit to a large elementary school such as is provided and controlled by the education committee of one of the county councils. If one in London be chosen the greatness of the schools and the variety of children attending them will give ample scope for variety of experience. If the searcher after the beautiful attends one of these schools at the time of "physical drill," the sight that will be presented to his gaze will be well worth any trouble he may have taken; nay, it will be too enchanting to balance against time and trouble. And he will find the same whether he makes his visit to a school in crowded Hoxton or Bethnal Green or in the more salubrious regions of Clapton or Tooting. He will have seen hundreds of children, from the tiny tots of the infants' department to the lads and lasses of the boys' and girls' departments, performing evolutions in drill, in bodily movement, or in a near kin to dancing, with a grace and perfection of attainment that will fill the stranger with surprise. The children he had before seen playing and screaming in the back street will be transformed before him and show a development of order and community of feeling that will amaze him. How has all this been brought about? During the past fifty years great attention has been given to the development of physical education for children. Different countries have evolved their own systems. The Swedes have won renown for the perfection to which they have developed a system of drill which is calculated to bring into action every combination of muscular movement from the simplest and easiest to those involving high skill and endurance. But its very perfection is to English eyes a defect, for the Swedish drill has been brought to a pitch of

mechanical excellence that has almost made it lacking in human interest. Alongside this development there has been a growth of English practice; it has boldly assimilated the best of the ideas of other systems, and has, according to the belief of those most experienced in these matters, secured for the English schools a system which is both efficient and graceful, practical yet full of the joy of life. It is such a performance the visitor to a London County Council school will see. Some recent publications on British physical education may be commended to readers interested. The textbook for teachers by Miss Beatrice E. Bear[1] is admirable in its arrangement and execution, the descriptions of the forms of drill are clear and sufficient, and the silhouette illustrations beautiful. The Board of Education has published three excellent books on the subject—one for the schools generally, another for the use of teachers of children under 7 years of age, and a further book giving description and suggestion for a great number of organized games for children. These three books are admirable.[2] The illustrations of the largest of them, both the photographic reproductions and the line drawings, are excellent, and the literary work of all three good. Their small price is no criterion of their value to those who have the oversight of children. The four books—that of Miss Bear and those of the Board of Education—are well worthy the study of all school doctors.

DIET IN POOR LAW INSTITUTIONS.

THE dietary of inmates in Poor Law institutions, other than those occupied solely by persons suffering from bodily or mental disease, has been controlled since 1913 by the Poor Law Institutions Order, made in that year by the Local Government Board. According to the Order the diet of inmates (infants, the sick, and the mentally defective being excepted) was determined by the guardians after consultation with the medical officer to the institution; a weekly dietary table was drawn up by selection from alternative schemes of scheduled rations. The exigencies of war, and the introduction of national rationing caused dietary schemes to be subjected from time to time to modifications. In view of the experience so gained, and in consequence of the large reduction in the number of able-bodied inmates of Poor Law institutions since 1913, the Ministry of Health has decided to relax the existing regulations. In the new Statutory Rules and Orders[3] much of the control of the central department in matters of diet is removed, and the regulations of 1913 are revoked so far as they required the guardians to adopt selections from scheduled diet tables, to limit the number of daily meals, and to submit to the Minister copies of the tables selected. The new Order, which is made applicable also to institutions receiving children other than the sick, infirm, or mentally deficient, does not relieve the guardians of the responsibility of framing, with the guidance of the medical officer, suitable dietaries for the inmates. In a memorandum by the Medical Department of the Ministry of Health medical officers are asked to consider the sufficiency of the present rations; the interval between the last meal of one day and the first of the next is said to be unduly long as a rule; in many Poor Law schools the amount of fat given to children is inadequate; and it is undesirable to omit, as is sometimes done, the second or "sweet" course in children's dinners. Allusion is made to the vitamine deficiency of margarine, and to the importance of securing that children should receive enough fresh vegetables, milk, brown bread, dripping, etc. One of the statutory rules enables the guardians, instead of framing a separate dietary table for each class of children, to allow children to be dieted at the discretion of the officers in charge, so long as the weekly issues per head of any food are within the maximum scale approved by the guardians on the advice of the medical officer; where this system is adopted the guardians must take special precautions to prevent any underfeeding of the children, and it is the duty of the medical officer to report any case in which the dietary seems inadequate or unsuitable.

[1] *The British System of Physical Education.* A textbook for teachers. By Beatrice E. Bear. With a foreword by Sir James Crichton-Browne. London: G. Bell and Sons. 1920. (Double fcap. 8vo. pp. xii + 128; 40 figures, 10 diagrams. 8s. 6d. net.)

[2] *Board of Education Syllabus of Physical Training for Schools.* 1919. H.M. Stationery Office. (Pp. 229. 1s.) *Physical Exercises for Children under Seven Years of Age;* with typical lessons. 1919. (Pp. 48. 3d.) *Suggestions in Regard to Games.* 1920. (Pp. 71. 4d.)

[3] Statutory Rules and Orders, No. 1915. The Poor Law Dietaries Order, 1920. His Majesty's Stationery Office. Price 1d.

A NEW JOURNAL OF STATISTICS.

STATISTICAL methods are now utilized in so many branches of science that it is hard for the ordinary reader to keep abreast of the subject; important novelties of method which might be applicable to, for instance, epidemiological data are first published in journals of psychology and conversely. With the object of focussing the scattered rays of arithmetical truth, an international review, entitled *Metron* and under the general editorship of Professor Corrado Gini of Padua, has been established; amongst the co-editors we notice the names of M. Lucien March (France), Professor Raymond Pearl (America), Mr. G. H. Knibbs (Australia), and Dr. Major Greenwood (England). The first number[1] contains contributions from many eminent statisticians, including M. March, Professor Edgeworth, Professor Czuber, Mr. Knibbs, and Professor Gini. The subjects dealt with cover a wide range, but, with the exception perhaps of Professor Gini's paper, "La conscrizione militare dal punto di vista eugenico," are not of direct medical interest. Professor Gini, as the result of an analysis of the vital statistics of Italian recruits, infers that the supposed prejudicial effects of compulsory military service upon fertility do not exist. It would appear that the postponement of marriage necessitated by service with the colours (of course Professor Gini is concerned with the data of peace time) is set off by a more favourable sexual selection; the completed fertility of those who served is not less than that of those males who were exempted from service for reasons which would not effect their reproductive powers. We shall look forward to the issue of further parts of the new review, which is clearly printed and attractively produced.

[1] *Metron.* Vol. i, No. 1. Published by Industrie Grafiche Italiane, Rovigno, Italy. (Pp. 190. 15 lire.)

STANDARDIZATION OF OPTICAL INSTRUMENTS.

THE advisory council of the Department of Scientific and Industrial Research has published a report of the Inquiry Committee on the standardization of optical instruments. The committee was appointed in 1918, and included representatives of the Admiralty, the Air Ministry, the War Office, the National Physical Laboratory, the optical department of the Imperial College of Science and Technology, and the British Optical Instrument Manufacturers' Association. The committee remarks that two generations ago England led the world in the invention and making of optical and scientific instruments, but that subsequently other countries, notably Germany, acquired, in many instances, the bulk of the work. In reconstructing, after the war, the industries connected with these instruments, greater attention must be given, it is held, to specialization, so that manufacturers shall not each make a large variety of instruments in relatively small quantities, but shall each construct fewer kinds of instruments in relatively larger quantities. For this aim, as has been generally recognized by the manufacturers, standardization is of vital importance. The committee has tried to reduce the existing great variety of sizes of some of the components of optical instruments, and to appoint limiting dimensions so as to procure interchangeability and reasonable closeness

of fit. It is recommended that the British inch, rather than the metric measure, should be retained as the unit of length for standardization of manufacture. The report sets forth the standard measurements recommended for telescope objectives, for diameters of lenses, for constructional and fine motion screws, for metal tubing, for screw threads, and for certain other parts.

THE USE OF MILK.

The Ministry of Health has prepared for the local health services a pamphlet with regard to the use of milk. In the circular letter accompanying it the opinion is expressed that if any material improvement in the milk supply of the country is to be effected, and if the consumption of milk per head is to be increased as it should be, especially in the case of expectant and nursing mothers and young children, it is important that knowledge should be disseminated regarding the special value of milk as a food, and the precautions which should be taken against its contamination in the home. The letter goes on to draw attention to the existing arrangements under which the Food Controller, on the advice of the Ministry of Health, issues licences permitting and regulating the use of the designations "Grade A (Certified) Milk" and "Grade A Milk,"[1] for milk produced and handled with special precautions as to purity and cleanliness. The Ministry desires that increased publicity should be given to these arrangements, of which comparatively little advantage has hitherto been taken. The Ministry, in accordance with approved schemes under the Maternity and Child Welfare Act, is prepared to sanction (and to pay a grant towards) the distribution by local authorities of high grade milk to expectant and nursing mothers and to children under 5. It is suggested that steps should be taken, where practicable, to secure by periodic tests and analyses that such milk is of a guaranteed standard in regard to chemical content. In the pamphlet are set forth in simple language the reasons why milk is a valuable and relatively cheap food, specially necessary for nursing and expectant mothers, infants, and little children; the dangers arising from the consumption of impure milk are described, and the measures are stated by which household contamination may as far as possible be avoided. The wisdom of buying Grade A milk, particularly for infants and little children, is also indicated. The average consumption of milk in many industrial districts is stated to be as low as 2 ounces a head a day; the average amount taken by the population of Great Britain at all ages is about 5 ounces. The Ministry desires to draw attention to the educational work undertaken with regard to the cleanliness of milk by the National Clean Milk Society, of 2, Soho Square, W.1.

AMERICAN CONFERENCE ON VENEREAL DISEASES.

An American conference on venereal diseases will be held at Washington from December 6th to 11th, 1920, under the joint auspices of the United States Interdepartmental Social Hygiene Board, the United States Public Health Service, the American Red Cross, and the American Social Hygiene Association, each appointing a member of the administrative committee. The president will be Dr. W. H. Welch of Johns Hopkins University. The main object of the conference is to bring together recognized authorities on this subject with a view to comparing and evaluating the methods now being employed in various parts of the world for the control of venereal diseases. In general the morning sessions will be devoted to discussion of the scientific basis underlying the campaign, the afternoons to discussion of administrative methods, while general meetings will be held in the evening for consideration by the conference as a whole of the various findings of the delegates. The problems proposed for discussion have been grouped under five heads, each comprising ten or a dozen questions. Thus, the first group of questions relate to medical investigations, the second to education as a means of controlling venereal diseases, the third to law enforcement and protective social measures amongst individuals, the fourth to social influences in the control of venereal disease, and the fifth to administrative measures. The executive secretary of the conference is Dr. Charles Bolduan, and the head quarters are at 411, 18th Street, N.W., Washington, D.C., U.S.A.

[1] British Medical Journal, March 6th, 1920, p. 336.

The Nobel Prize in Medicine for 1919 has been awarded to Professor Jules Bordet, M.D., LL.D., President of the Faculty of Medicine, and Director of the Pasteur Institute, Brussels; and the prize for 1920 to Professor August Krogh of the University of Copenhagen.

The Thomas Vicary Lecture will be delivered in the theatre of the Royal College of Surgeons of England in Lincoln's Inn Fields by Sir D'Arcy Power on Thursday, November 11th, at 5 o'clock. The subject of the lecture will be "The education of a surgeon under Thomas Vicary." Fellows and Members of the College are invited to attend. Students and others who are not Fellows or Members will be admitted on presenting their private visiting cards.

A joint conference on "The care of invalid and crippled children" will be held by the Invalid Children's Aid Association and the Central Committee for the Care of Cripples on Tuesday and Wednesday, November 16th and 17th, in the Council Chamber of the Guildhall, London. The Lord Mayor will open the conference, and the Right Hon. H. A. L. Fisher, President of the Board of Education, will give an address. The chair will be taken at the four sessions by Sir William Bennett, Sir Arthur Stanley, Sir Robert Jones, and Sir Napier Burnett. The subjects for discussion include the bearing of recent legislation on the work for physically defective children; co-operation between the State and voluntary bodies; existing institutions for the treatment and education of these children in the United Kingdom, in America, and on the Continent; the treatment of heart cases, and the scheme for future development suggested by the Central Committee for the Care of Cripples. The Central Committee has collected a considerable amount of information as to the numbers of physically defective children throughout the country and as to the amount of accommodation available for them at the present time.

Medical Notes in Parliament.

The Hospital Question.

Dr. Addison stated, on October 27th, that it was hoped to proceed with the Ministry of Health (Miscellaneous Provisions) Bill immediately after the Committee stage of the Government of Ireland Bill. Mr. Lyle asked, on October 27th, if the Minister of Health could add anything to the statements already made as to the attitude and future policy of the Ministry towards the voluntary hospitals. Dr. Addison said he had nothing to add at this stage, but there would be an opportunity of discussing this question on the Ministry of Health (Miscellaneous Provisions) Bill. [In our Parliamentary Notes last week a full report was given of Dr. Addison's address to the House of Commons Medical Committee on the hospital clause in this bill. In the Supplement this week we print the report of a deputation from the British Medical Association which waited upon Dr. Addison at the Ministry of Health on November 1st to discuss this matter.]

Shell Shock Committee.

The Departmental Committee (of which Lord Southborough is Chairman), appointed to consider the effects of shell shock and how far these effects should weigh in trials for cowardice, has held two sittings, and is proceeding to take evidence.

The Dentists Bill.

Assurance has been given by the Government that the Dentists Bill will be introduced shortly, and there is hope that it may be passed into law this session.

London University: The Bloomsbury Site.—Sir William Davison asked, on November 2nd, whether the present Government or their predecessors had at any time incurred any legal or moral obligation to purchase from the Duke of Bedford the site at the rear of the British Museum; whether an agreement to purchase was ever actually entered into and subsequently rescinded on terms; whether this entanglement with the Duke of Bedford was the cause for the Government refusing any freedom of choice to the University of London with regard to a site, and caused the restriction of the Government's offer to the site at the rear of the British Museum; and whether the price which the Duke of Bedford had agreed to accept could now be stated. Mr. Fisher (Minister of Education) said that the answer to the first three parts of the question was in the negative. The price which the Duke and his trustees had agreed to accept was £425,000.

R.A.M.C. Resignations.—Lieut.-Colonel Buckley asked, on October 26th, whether officers in the Royal Army Medical Corps were refused permission to resign their commissions; and if so, why they were being placed under a disability which was not experienced in any other branch of the service. Mr. Churchill said he regretted that at present, only in exceptional circumstances, such as ill health, could permission be granted for officers of the R.A.M.C. to retire. This decision was rendered neces-ary owing to the shortage of medical officers fit for general service, to the large number of applications for permission to retire which had been received, and to the heavy demands from overseas for the services of officers of the R.A.M.C. Captain Elliot asked whether Mr. Churchill would consider the possibility of raising the pay of the officers in the employ of the R.A.M.C. to an equivalent of what a practitioner could make in private practice. Mr. Churchill said that would not meet the immediate emergency. Captain Elliot said that it would attract men from civil practice, and by bringing in fresh recruits liberate those who wished to retire.

Local Government Officers' Superannuation.—Dr. Addison stated, on October 27th, that the bill in regard to the superannuation of Local Government officers was being prepared, but he could not hold out any expectation of the measure being passed this year.

Sanatorium Benefit Staffs.—Mr. Ormsby Gore asked the Minister of Health, on October 22nd, whether, in connexion with the discontinuance of sanatorium benefits at the end of the current year, he would either provide for the compulsory transfer of members of staffs of Insurance Committees engaged on sanatorium benefit work to the new authority, or provide adequate compensation for all officers displaced by the change, as was done similarly in other cases. Dr. Addison replied that the sanatorium work of Insurance Committees was only a part of the work of those bodies, and was, to a large extent, carried on by officers and servants of the committee, who had other duties. He issued a circular letter to Insurance Committees last June in regard to this matter. Mr. Gore inquired whether, as a result of that circular letter, county council authorities had informed officers hitherto engaged in this work that no hope could be held out of their being employed on other work, and whether the Minister was aware that a number of clerks and others were being thrown out of work. Dr. Addison said he had no knowledge of any such facts, but was ready to receive any communication Mr. Gore might make to him on the subject.

Maternity Welfare.—Mr. Raffan asked, on October 27th, if the Minister of Health could state when a bill to give effect to the Washington Convention concerning the employment of women before and after childbirth would be introduced, and whether he was aware that action on these lines had already been taken by the Governments of Belgium, France, Italy, Greece, Spain, South Africa, and Venezuela. Dr. Addison replied that the question was engaging the attention of the Government, and he hoped to be able to make an announcement shortly. He was not aware what action was being taken by foreign governments.

National Health Expenditure.—Replying to Lieut.-Colonel Pownall, on October 28th, Dr. Addison said that information as to the expenditure on National Health Insurance during the year 1919 was given in the return of July 23rd of the present year. He wished it to be understood that no reliable conclusions could be drawn from a comparison of the expenditure of administration with the amounts paid in benefits, in view of the fact that the administration of National Health Insurance covered a much wider range of duties than the payment of benefits. The amount which approved societies were allowed to spend on administration was limited by regulations, and, having regard to the importance of securing efficient service, he had no reason to think it was excessive.

Adjustment of Disability Pensions.—Mr. Ormsby Gore asked, on October 27th, whether the attention of the Minister of Pensions had been called to the action of Regional Boards and directors in reducing the percentage of disability after the actual payment of higher percentage rates authorized by the Local Pensions Committees and the consequent repayment demanded from disabled ex-service men; whether the Minister would order that rates of payment authorized by Local Pensions Committees should stand until reviewed by higher authorities; and if reduced by the latter, that the reduction should operate only from the date of the latter's decision. Major Tryon replied that the arrangement by which medical referees were in certain limited classes of cases allowed to assess disability provisionally in advance of medical examination by a full medical board was made to meet exceptional cases of emergency, where delay would involve hardship. The main function of medical referees was, however, not assessment for pension purposes, but determination of the need of medical treatment, and it was fully understood by all concerned that any advance given provisionally by a local committee on a referee's finding was liable to adjustment by a properly constituted board. The Pensions Minister could not adopt the suggestion contained in the latter part of the question.

Pensions Appeals Statistics.—Mr. Macpherson stated, on October 28th, that the number of appeals heard by the Ministry of Pensions Appeal Tribunal, prior to their dissolution on October 31st, 1919, was 14,731, and of these, 5,064, or 31.2 per cent., were decided in favour of the appellants. On November 1st, 1919, the Statutory Pensions Appeal Tribunals were established, and from that date to September 30th, 1920, 13,030 appeals had been heard, of which 4,130, or 31.7 per cent., had been allowed. Mr. Macpherson added that the Lord Chancellor's office informed him that there were at the present time 2,300 cases in the hands of the tribunals for England and Wales. About 400 appeals were taken weekly, but some had to be adjourned. The average time elapsing between the date when the appeal reached the Head Quarters Office and the date of hearing, was about one month. He was willing to consider the advisability of the appointment of a second tribunal for Scotland.

Treatment Allowances.—Sir A. Warren, on October 25th, asked if the attention of the Minister of Pensions had been called to cases of hardship arising from the operation of Circular 204, whereby disabled men certified by the medical referee as unable to follow a remunerative occupation were being denied treatment allowances by the Deputy Commissioner of Medical Services on the ground that the disability pension was an assessment of the average disability over the period of its currency, and account was taken in its award of such brief periods of incapacity as might be expected to occur in the normal course of the disablement. He asked the Minister if he would postpone the operation of the circular until there had been an opportunity of reviewing the situation in the light of fuller information now available. Major Tryon replied that treatment allowances were, by the terms of Article 6 of the Royal Warrant, confined to cases where it was considered by the Ministry that a man should undergo a course of treatment, and was in consequence rendered unable to support himself. Circular 204, which drew attention to this principle, had been in force in its present form nearly nine months, and the Minister of Health was unable to adopt the suggestion of Sir A. Warren.

Reassessment of Pensions.—In reply to Mr. A. P. Davies, on October 28th, Mr. Macpherson said he had had a comparison made of the results of reassessment of pensions over two periods of four months—namely, June, July, August, and September in 1920, and the same four months in 1919. The figures showed that in the four months of last year 138,000 men were re-examined by the Medical Board, with the result that in 34.4 per cent. of the cases the previous rate of pension was unchanged; in 13.1 per cent. the assessment was raised; and in 43.5 per cent. the assessment was reduced. During the same period of this year 210,000 men were re-examined, with the result that in 43.8 per cent. the previous assessment of pension remained unchanged; in 7.4 per cent. the rate was increased; and in 48.8 per cent. the assessment was reduced. He had been asked whether any instruction had been issued by the Ministry urging the desirability and need for cutting down pensions. He was glad to have the opportunity of replying. He wished it to be clearly understood that no such instructions, confidential or otherwise, had been issued by his department, and none such would ever be issued with his knowledge and consent. Bearing in mind that the assessment for pension purposes depended on the estimate of the extent to which a man was disabled, as determined at intervals of six or even twelve months by a Medical Board; that, in the course of nature, it was only to be expected, especially in the case of disease, which formed 54 per cent. of the whole, that the men should to some extent recover their health; and that the Ministry was spending several million pounds a year in providing treatment for disabled men, he thought the figures he had quoted were sufficient to refute the unfortunate, if not mischievous, suggestion that there was any concerted attempt to reduce pensions arbitrarily.

Sir A. Boscawen says that the Termination of the War (Definition) Act, 1918, provides that the date of the termination of the war shall be as nearly as possible the date of the deposit of ratifications of the last Treaty of Peace. Mr Bonar Law has offered the assurance that there will be "no unnecessary delay" in the ratification of the Turkish and Hungarian treaties, which are the last two outstanding treaties to be ratified.

Mr. Chamberlain announces that further legislative proposals are under consideration which will enable the Commissioners of Customs and Excise to modify the existing restrictions on the conditions of transport and distribution of spirits intended for us in making power methylated spirit so far as this can be done with due regard to the protection of the revenue.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

The Shows at Olympia and White City.

There is such an unprecedented variety of motor carriages at the Motor Show organized at Olympia and the White City by the Society of Motor Manufacturers and Traders, under the patronage of the King, that the medical man is in sore need of some guide to those features likely to appeal to him. The display is, internationally, the most representative organized in any part of the world. It replaces the yearly show in Paris, which was not held last month. It precedes the great American shows. Therefore, for the time being, London is the motor mart of the world. Late enemy countries excepted, the industry of every country taking a part of any importance in motor building is adequately represented, the number of American makes on the market being particularly noteworthy. The exhibition is marked by the introduction of a large number of entirely new makes of cars, but a goodly proportion of them have not adequate manufacturing facilities behind them to justify their receiving the patronage of the medical profession, whose prime need is a tested design offered by financially well-established firms; reliability and economy of cost, together with absence of the speculative element, are essential to doctors' service. Last year 271 makes of cars were on the British market. According to the *Autocar*, that number of builders and assemblers has now risen to 302, of which 149, or less than half, are British. The varieties of types at the current exhibition number 459, because many of the makers market more than one model.

Misleading Talk about Price Cutting.

At this season there is talk to the effect that the cut in car prices is the chief feature of the show. If, however, we take the prices asked at this season last year, and compare them with those ruling to-day, it is scarcely true to say that there is anything in the nature of price cutting to be observed; far less that it is a general tendency. The reason is plain. In the interval of twelve months we have all had to revise our ideas of the value of money, particularly as all classes of manual workers are receiving higher and yet higher wages, with the result that the costs alike of raw materials and of labour for building a car are unprecedentedly high. In a few cases this has been offset by the coming into production of factories on large scales, in which the dead, or overhead, charges which have to be divided over each vehicle are naturally lower as the output grows. Those dead charges are more or less fixed factors in running a given establishment, and cannot be cut very appreciably merely because output falls off.

The real note of the show is that for the first time anybody going to an exhibition of this sort with a view to placing an order for a post-war car shall really secure delivery within a reasonably early period. Last year orders were given without any guarantee of delivery. At least half the last manufacturing season was productive of no results whatever. That was owing to successive labour troubles. The situation to-day, however, is that, in the main, production is on a scale adequate to meet demand. As for falling prices, it may be pointed out that, whereas at this time last year the cost of a Rolls-Royce chassis was £1,750, to-day it is £2,100, which is also the cost of the 1921 six-cylinder Napier chassis with overhead valve engine, and the six-cylinder Lanchester chassis costs £2,200. While there are not many cars that cost as much as these, the plain fact is that practically all the larger cars are costing quite as much as, if not more than, was asked for them twelve months ago, though many are marketed at prices lower than those that had to be asked last summer, when production was on relatively a small scale, but dead charges remained stationary. Moreover, such cars as the Willys-Overland are not cheaper than last year, the price of the types with covered coachwork being now dearer.

Coming Taxes a Prime Consideration.

In face of the fact that for the most part doctors placing orders for cars now will not seek delivery of them until January 1st it may be pointed out that a prime consideration for them in buying at this time did not obtain formerly—namely, the new scale of taxation. One may take it, broadly, that a car beyond 20-h.p. Treasury rating is not needed by the average doctor. The new tax is £1 per horse-power, therefore a 20-h.p. Treasury rating car involves an expenditure of £20 a year for tax alone.

Under this head it is interesting to observe that no country is offering better value for money in the 20-h.p. class than does the Austin Company, which has been in fuller production, perhaps, than any other firm in this country during the last twelve months, and whose product is now well proved. In the interval sundry new models are being introduced for this market, as instance the 19.6-h.p. four-cylinder Crossley. Both these vehicles may be taken as about the limit of the possible requirements of the medical man, each being suitable for a specialist whose need may be for a relatively fast car carrying covered coachwork and required on occasions to make fairly long journeys.

The average medical man, however, may find these, and such vehicles as the 16-h.p. Sunbeam, too expensive to maintain. But there is ample choice in other directions. Among tested products there is the 15-h.p. four-cylinder Wolseley with overhead valve engine. It is now in full production, and will therefore well repay attention. A like remark applies to the improved post-war models of the nominal 12-h.p. Rover car of the water-cooled type, with detachable cylinder head. This machine is put on the market in very complete fashion, and has sundry improvements in it that may be noted later. Coming down the scale of power, and therefore of prices, one notes in one direction the 10-h.p. three-speed Wolseley-Stellite (Stand 62, Olympia), which, as a two-seater with dickey seat behind, is of about the right power and price for the average medical man. This, like the Rover, is a long proved design, despite its striking originality, the points of which have been well tested in service. There need be no hesitation about buying machines of this character: their economy of running is evident.

This year there is introduced one notable recruit to the overhead valve type of engine—namely, the Standard Company, of Coventry, which has long specialized in a type of car of the size, price, and power, as well as maintenance costs, eminently suitable for medical men. In reviewing the exhibits one notes with regret that such a striking design as the air-cooled Enfield-Alldays, introduced last year, has failed to materialize in standard form because some £100,000 worth of special plant is needed to lay down the work for standard production on satisfactory lines. But the firm is bringing forward a new style small car on what may be called conventional lines.

A Type as a Text.

Any disappointment under this head is offset, too, by the big advance made by the Rover Company with the horizontal engine with two opposed cylinders of the air-cooled variety. This is styled the 8-h.p. model (Stand 57, Olympia). It has now come into full production at a specially equipped works separate from the Coventry factory, and situated at Birmingham. When these cars were first issued in standard form they were engaged in various competitions, in all of which they distinguished themselves. Since then large numbers have appeared on the road in private ownership.

In face of the cost of production in the post-war period, there is here something particularly interesting to the medical man on many grounds. As to price, this is £300 ready for the road. As to performance, the car can be driven up to 40 miles an hour. Of course, the best running is got between 20 and 30 miles an hour, which is fast enough for the average medical man. On long journeys the petrol consumption has worked out in standard examples as economically as 45 miles to the gallon of petrol; 40 miles to the gallon can be practically guaranteed. The horse-power is generous in relation to weight, the engine giving fully 14 h.p., and the total weight of the vehicle being under the half-ton. The suspension is by quarter elliptic springs fore and aft; therefore, the worst one would get on a pot-hole road would be great plangency. To receive a jar is impossible with this system of springing. The vehicle is well worth studying, too, as illustration of how to avoid complication. Here the lines are extremely simple. There is strength without undue weight. There is nothing about which the medical man need be shy. It is generally imagined that an air-cooled engine in a car is a difficulty. The fact, however, is not so. The difficult thing is to devise an air-cooled engine which can be made to run quietly, like the water-cooled variety. The Rover Company has come nearer solving this problem than any firm I have observed so far. It has got on to production of this class of vehicle on a scale not yet attempted by any

other firm in this country, nor on the continent of Europe. The American industry has never attempted anything in this line. Nor is it at present inclined to do so.

The Air-cooled Car as a Standard Product of Low Price.

In face of the approach of winter, one merit of the air-cooled car from the medical man's point of view may be mentioned: it removes entirely the need for worry about the engine when left in the cold. For example, during a visit to a patient the cylinders cannot crack in winter, because there is no water in them to freeze. As to refinement of operation, the plate clutch, the employment of a worm drive just as on the large Rover car, and so on, are notable features of refinement. This has not the coarseness of cycle car practice, but all the refinements of car practice. Yet the design especially aims at saving initial cost while ensuring long wearing life and economical consumption, therefore the minimum maintenance and running costs. The design of the bodywork, the features of the Lucas lighting fitted as standard, the method of driving the dynamo for it, and so forth, have proved satisfactory in service. In short, this is one of the post-war types of vehicle for the doctor of which more certainly will be heard.

The larger section of the medical profession now has to regard motor car buying from an entirely different point of view. Young doctors have taken wholesale to the use of motor cycles this year, not because they prefer them, but because they were the only motor-driven machines they could get at the price they could afford. Such a proposition as this small Rover has running and maintenance costs more on the motor-cycle scale, therefore enormously cheaper than anything provided by any American or foreign car on the market. As to a suitable motor vehicle in which the driver is adequately protected from the weather, there is nothing to challenge this production in the current show. Years of manufacturing experience on a large scale have been needed, and the expenditure of scores of thousands of pounds in the laying down of special plant to enable each part to be made to the best advantage. So many hundreds of these vehicles are in the hands of the public that the manufacturers have the reports of their behaviour, and know precisely in what details to effect modification here or there. In short, they are assured that each example issued from the factory from now onwards will be more satisfactory than any that has gone before. In motor building there is need not merely to get your design and your plant right; you have, besides, to get your works hands working in team fashion.

I am inclined to take this car as a text not merely because among last year's novelties designed with a view to solving the cost problem this is about the only notable one in the low price classes that has materialized and enhanced the reputation of long established sponsors, but also because it gives one heart to continue one's isolated campaign against a most regrettable tendency that is all against the interests of the doctors, and for which the motor pressmen in general may be said to be no less responsible than, perhaps, the American industry. I refer to the fact that the tendency to overload cars with superfluous accessories by process of standardizing them as though they were essential seems rather to have increased than diminished. Motor manufacturers in general are not at all keen on piling one "gadget on another" on a car. But they have to do so because a fashion is set on the other side of the Atlantic and because writers on motor topics in the technical, no less than in the lay, press are disposed to imply that this, that, or the other device is a necessary part of a complete vehicle. If the little Rover car is looked at it will be discovered that all that is necessary to run a car is there; but nothing that can be dispensed with. Would that one could write the same about cars with water-cooled engines.

Doctors and the Exhibition.

It will be observed that, whereas last year a table of features of cars likely to be of interest to medical men was published in these pages on the occasion of the first exhibition of motor cars in England after the interval of war, no such figures are given in the present issue. The reason is that it was necessary then to review everything in the way of moderate cars introduced to public notice, including contributions — often interesting for individual features embodied in them—by firms of limited manufacturing resources. The smaller the output the easier it was for such concerns to proceed with their production programmes, despite the difficulties presented successively by the moulders' and other strikes, because the smaller production the easier it was to get supplies of castings, springs, and other essentials between the interruptions occasioned by labour disturbances. At that troubled period the essential thing for medical men, as for other car users, was to discover, not the ideal vehicles for their purposes, but what types could be produced that would suffice. Happily, in the interval the big producers with ample resources for the best methods of production have been able to achieve very large outputs. Therefore this year, for the first time since the start of the campaign, there is no call for doctors to buy "anything that can be supplied on wheels." Instead they may choose. A result is that the makers established on a big scale can give the best value for money and the best types of tested cars. Altogether better and more trustworthy machines are available among the well established makes, which, however, are not numerous.

An Overhead Valve Engined Standard.

The 9.5-h.p. Standard car (Stand 59, Olympia) has rendered yeoman service to the medical profession since the firm first marketed this chassis as one of the earliest of the really creditable contributions towards the provision of a small car of economical running costs combined with durability such as is suitable for the doctor. As a consequence a demand has arisen for a somewhat more powerful car to take a four-seater body. To meet this the company introduces a 11.6-h.p. engine of 68 mm. bore by 110 mm. piston travel, giving a volume of 1,598 c.cm. with overhead valves, the cylinder heads being detachable and the engine lubrication forced. An electrical mechanical engine starter and car lighting system are standard, and the proved 9½-h.p. chassis features are incorporated in this longer wheel base 11.6-h.p. type, which is standardized with two- and with four-seater bodies that reveal in their details practical knowledge as well as originality. Ready for the road, the four-seater weighs 17 cwt. as an open car with a luggage grid. In this model the squab of the rear seat can be lifted open and retained by toggle-arms, while access is had to a large and shallow compartment for storing the side curtain windows of the special hood. Moreover, the front seats are arranged to fold ingeniously, are adjustable for reach, the cushions being square, so that they can be reversed, and the back squab is suspended from a metal frame with a broad band that can be laced tightly or loosely according to the wish of the user. The valve rockers are lubricated by pressure. There is provided at the front of the cylinder head a small extra water-pipe running to the top of the tank of the radiator to prevent steam lock occurring during extra hard work. The power given by the engine is ample for the coachwork and passengers accommodated on a wheelbase which provides ample leg room for the occupants.

Improvements in the Swift Models.

There are sundry improvements in the 1921 four-seater 12-h.p. Swift model (Stand 47, Olympia) which employs a Zenith carburettor in conjunction with a C.A.V. electrical engine starter and car lighting system. The silent chain drive for the distribution gear is adjustable for wear. The general lay out of the engine, as of the chassis, is on well-proved, orthodox lines. In regard to the coachwork there is this year a marked improvement. The slightly tumbled-in top to the sides of the four-seater standard body is an attractive feature. The colour scheme is grey with apple-green upholstery. The alterations in the 10-h.p. Swift model include the provision of a hand-brake inside the body. There is also a better form of accelerater pedal. The carburettor is equipped with an air strangler. An electrical engine starting and car lighting set is standardized. For the rest, save for very minor refinements, the chassis remains as hitherto. It will be noticed, however, that the price of these cars is lower than that which ruled during the past summer. This is on account of the increase of output enabling the "on costs," as they are styled at the factory, to be distributed over a larger number of cars, with the result that the price of each works out lower.

The new car introduced by Enfield-Alldays—which made a notable attempt last year to break new ground with a remarkable five-cylinder air-cooled engine which it subsequently proved impossible to put into production because over £100,000 worth of plant was necessary to equip a factory specially to build the car—is a 10-h.p. four-cylinder water-cooled machine constructed on orthodox lines to achieve refinement in a small car. The engine has a bore of 63½ mm. and a piston travel of 117½ mm., giving a volume of 1,488 c.cm. swept by the pistons. The lubrication is mechanical. The gearbox gives three speeds forward and the final power transmission is by spiral bevel

gear in the back axle. The rear springs are cantilever. This is not a "mass-production" car; the coupé and other special bodies are made to order, only the two- and four-seater open types being standardized. (Stand 63, Olympia.)

The 1921 10-h.p. Singer Light Car.

An additional universal joint to the propeller shaft; the furnishing of an Autovac feed in conjunction with the employment of a fuel tank in the rear to the achievement of a better balance; the simplification of the bonnet scheme; and a wider dickey seat, are the chief changes in the 1921 model of the 10-h.p. Singer Light Car, a type so popular that there is no need to depart from it beyond incorporating detail improvements in the scheme from year to year. The engine is of the same size as formerly, 63 mm. bore by 88 mm. piston travel, giving a volume swept by the pistons of 1,096 c.cm. This engine is in a sense uncommon nowadays in that the cylinders are cast in pairs. Some of the alterations incidentally make for cheaper production. The new dickey seat unfolds upwards and outwards. The other half of the boot of the car hinges upwards and can be locked by means of wing nuts in any position desired. The rear part of the body is 6 in. wider than in this year's model. The removal of the dickey seat reveals a hole in the floor board that gives access to the filler cap for the petrol tank, which has a capacity of over six gallons. Therefore this car has a greater range on a single charge of fuel than have the earlier models with the gravity tank on the dash. This transference of the fuel tank enables the dash to be made of neater appearance, and to accommodate full easily the instruments disposed symmetrically on either side of the small oblong cupboard wherein maps, glasses, books, and other small articles can be put. The bonnet is composed of three separate members, the two side ones being hinged at the bottom so as to open outwards. The third, the neatly rounded top member, rests on the radiator and dash, and is held by springs to the side by four small clips. By removing the top piece and opening the sides outwards the engine can be exposed in a few seconds. On the coupé model the taper lines from the dash to the bonnet are straight in place of being curved. The cooler is carried by a cross tube lying between the front ends of the side members of the frame and braced at the top by an adjusting rod anchored to the water outlet pipe on the top of the cylinder block. This arrangement enables the radiator to be dismantled, or put on, much more easily. The valve covers are now fashioned of pressings. A clip has been made to keep the ignition wires well away from the exhaust piping. Instead of fitting the ignition wires direct on to the sparking plugs they are provided with terminal clips. (Stand 93, Olympia.)

Contrasted Types of Middle-size Cars.

Perhaps the feature of the Humber exhibits that will attract most attention on the part of the medical man is the 10-h.p., otherwise the smaller four-cylinder chassis, equipped with coupé body. (Stand 32, Olympia.) This little car, which is listed at £750 ready for the road, is neatly finished in dark blue with black leather collapsible hood. It accommodates two people comfortably, and is well designed for doctors' work. The cooling is by the natural circulation of the water, and the oiling is automatic by pumps and troughs. A Smith carburettor is used. The gearbox gives three speeds forward and a reverse, the final drive in the back axle being by bevel gear.

The Morris-Oxford and the Morris-Cowley four-cylinder cars are supplemented by a six-cylinder model, the engine of which is alone shown. It has a bore measurement of 70 mm. and a piston travel of 102 mm., giving a volume of 2,355 c.cm. swept by the pistons. Therefore, this machine will come under the 17.9 h.p. Treasury rating. The power plant, as well as the chassis, is to be made entirely at the Cowley works. For this model the Lucas electric equipment has been selected, including the gear for starting the engine and a Zenith carburettor. The final power transmission is designed to be by spiral bevel gear in the back axle. Fore and aft suspension are to be by half elliptic springs. (Stand 97, Olympia.)

The new Phœnix model is rated at 18.2 h.p., being furnished by a four-cylinder engine having overhead valves and overhead camshaft; the bore measurement is 85 mm. and the piston travel 135 mm., giving a volume of 3,064 c.cm. swept by the pistons. This engine is built in a unit with the clutch and gearbox, the final drive being by spiral bevel in the back axle. Relatively quiet running is achieved by off-setting the camshaft in relation to the valves, securing a low lift cam which operates a high lift valve. The valve ports are cored in the detachable cylinder heads, the inlet ports being almost in a straight line from the carburettor to the valve. The cantilever rear springs are set inside the longitudinal members of the frame. The gearbox is furnished with three speeds forward. (Stand 54, Olympia.)

A low-built new car with proportionately wide track and long wheelbase in conjunction with cantilever rear springs is the 19.6-h.p. Treasury rating four-cylinder Blackburn car, introduced by a firm hitherto associated with the aviation industry. There is nothing experimental about the design, which rather follows generally approved practice. But the appearance of the car is distinctive and pleasing. The cylinders are cast in pairs, having a bore measurement of 89 mm. and a piston travel of 127 mm., giving a volume of 3,160 c.cm. swept by the pistons. The layshaft is placed at the side of the main shaft in the gearbox, both shafts being short, rigid, and mounted on ball bearings. Four forward speeds are provided. Helical bevel gear is furnished to the back axle, which is of the full floating type. The transverse members that act as bearings for the gearbox are removable, this part of the construction being quite out of the ordinary and illustrating the aircraft engineering experience of this firm. The plans are to give first deliveries in the early part of next year at a price provisionally stated as £800 for the chassis.

The French Mass-Production Car.

Despite a number of difficulties, the French manufacturer has done notable things in the mass production of the Citroen car introduced at the show last year by the British concessionaires, Messrs. Gaston, Ltd. (Stand 308, White City). The car is now made for this market with steering and hand-brake control on the right side of the vehicle. The scheme of the chassis, well designed and soundly made, has not been departed from. The features embrace the use of an ingenious form of double quarter elliptic rear springing; the front suspension being by quarter elliptic springs. The coachwork is on standardized lines throughout. It is claimed that this car does full thirty miles to a gallon of fuel. The final drive is by herring-bone gear in the back axle. The chassis is now built as a complete unit, the aluminium dash and electric lighting equipment being quite separate from the coachwork. The propeller shaft is now tubular throughout its length. The tie rod under the front springs has been dispensed with owing to the adoption of slightly stronger springs. The forward end of the upper leaves slides in the axle, but the front of the lower leaves is fixed to the axle. The pedal for the mechanical engine starter is now placed close to the central gear change mechanism. The four-seater touring car is standardized at £495, and the coupé with extra folding seat at £625, the bodies being on standardized lines throughout. The disc type of wheel is also standardized.

The 15-h.p. four-cylinder Darracq, with 85 bore and 140 mm. stroke measurement, giving a volume of 3,178 c.cm., is introduced this year with a detachable cylinder head and an external ribbed exhaust manifold. The aim is to reduce to the minimum the likelihood of carbon deposit, as well as to increase the power by approximately 10 per cent., a Smith multi-jet carburettor being adopted. It is bolted to the cylinder block on the right side and warmed from a by-pass off the circulating water. The changes made in the gearbox housing result in its being stiffer. Relatively long cantilever rear springs are used. They are attached to the back axle by two shackles, both the main and the secondary leaves having an eye rolled on their extremities. The petrol filter cap is big and equipped with an efficient filter. (Stand 85, Olympia.)

Delage introduces a 15-h.-p. four-cylinder model of 80 mm. bore by 150 mm. piston travel, giving a volume of 3,016 c.cm. swept by the pistons. Front-wheel brakes, which are a distinctive feature of the six-cylinder type introduced by this firm last year, are not standard on this four-cylinder model, but they can be supplied as an extra. Ordinarily this would not be a satisfactory practice, because the front axle has to be designed specially to take the extra weight and strain, and the steering should also be schemed specially. The knowledge of these facts possessed by the Delage firm has led it so to design these details of the four-cylinder model that there is nothing experimental about the application of four-wheel brakes to it. They are, however, rather unnecessary for the average service of a doctor, particularly as very big back brakes are furnished. (Stand 34, Olympia.)

Miscellaneous Features of Small Cars.

Among the new small cars introduced is the 10.5-h.p. Treasury rating four-cylinder Galloway with detachable

cylinder heads, forced lubrication, and features which include the bolting together of the engine and gearbox, unit fashion, to carry the pedal assembly, hand brake and central gear change lever. The rear suspension is by quarter elliptic springs, and the forward springing semi-elliptic, detachable disc wheels being standardized. (Stand 21, Olympia.) The novelty of the Willys-Overland programme this year is the 21-h.p. four-cylinder, monobloc cast, Willys-Knight double sleeve valve engine, having a bore measurement of 92.1 mm. and a piston travel of 114 mm., giving a volume of 3,031 c.cm. swept by the pistons. This type was introduced to the American market about half-way through the war, so that it is well proved. The cylinder head of this monobloc casting has a detachable aluminium cover. The clutch is of the single plate type. The gearbox gives three speeds forward and the final drive is by spiral bevel to a semi-floating live axle. The car is standardized either as a five-seater, or as a Sedan. (Stand 83, Olympia.) The Calthorpe coupé is listed at 550 guineas; and a new model is introduced with a saloon body at 600 guineas. The chassis displayed this year represents a logical evolution of one of the vehicles that pioneered the small car movement, this year's type having a single plate clutch, gate change gear control independent of the frame, and a new hood laced to metal supports. A fan has been added to assist the cooling, and is equipped with an adjustable whittle belt, which is also employed to drive the dynamo. (Stand 92, Olympia.) The 1921 Lagonda coupé model is marketed at £495, with a larger engine and longer wheelbase. This car has overhead inlet valves and aluminium pistons. The folding top of the dickey is made in two pieces hinged together, the forward section folding back on to the rear part, which is also hinged. The under side of the folding top is upholstered to form a support for the passenger's back and shoulders. A detachable seat cushion is mounted over the spare-wheel housing. (Stand 17, Olympia.) The wiring and instruments on the 10.5-h.p. Treasury rating four-cylinder water-cooled Charron-Laycock car, built by the Sheffield firm of W. S. Laycock, are carried on an aluminium dash and instrument board, as on large cars. Side valves are used, and the detachable cylinder heads are machined inside. The price of the two-seater, with double dickey seat and full equipment, is £625. (Stand 84, Olympia.) Each of the 1921 A.C. models is equipped with an auxiliary spring that takes the form of an extra leaf cambered the opposite way to those forming the spring proper. The aim is to reduce rebound. (Stand 122, Olympia.)

It will probably be agreed generally that the outstanding exhibit among the smaller cars is that of Bugatti, this firm having carried the victory in the international Voiturette race in France last August, when it made notable showing as well in regard to holding the road as concerns speed and reliability. Suffice it to point out that an examination of the design of the springs, which is unusual and simple, as is the fitting of four valves per cylinder to the engine, will give a very good notion of the trend which high-grade design may take. As to accommodation, perhaps, this is rather smaller than the average car required by a doctor. (Stand 50, Olympia.) A new type of radius rod is furnished to the Douglas light car, which is further distinctive in that it is equipped with the A.F.S. patented helical suspension system. (Stand 23, Olympia.) The Duplex light car makes its appearance this year in the guise of a machine equipped with a four-cylinder engine having a bore measurement of 66 mm. and a piston travel of 109 mm., the Cox carburettor being used. (Stand 124, Olympia.) One of the few small cars that comes within the 1,500 c.cm. class to be equipped with a gearbox giving four speeds forward and to be of sufficient power to carry a four-seater body is the Fiat, the design of which shows no notable changes, and follows well approved practice throughout, being chiefly remarkable for clean lines. (Stand 114, Olympia.) The engine of the 1921 Hillman standard model has been enlarged to give sufficient power for the demands made in regard to coachwork and hill climbing. In addition, there is introduced this year the Hillman "speed model." (Stand 65, Olympia.) The engine of the Mathis has each valve cap so large as to cover both the inlet and the exhaust valves of each cylinder. (Stand 179, Olympia.) The McKenzie Light Car is now fitted with a Coventry-Simplex engine. (Stand 109, Olympia.) Instead of the Baby Peugeot, which is produced no longer, there is an 11-h.p. four-cylinder model shown as a two-seater for £490, the bore measurement being 65 mm. and the piston travel 105 mm. The gearbox gives four speeds forward. Other features embrace a worm drive and the furnishing of cantilever springs. (Stand 94, Olympia.)

The cleverly designed A.B.C. Light Car introduced last year makes its reappearance, there having been little occasion to alter the clever and original design of Mr. Granville Bradshaw. The engine is an air-cooled two-cylinder horizontally opposed type. The control gate is unusual in that it works vertically. The gearbox has four speeds forward. (Stand 414, White City.) A gear-driven oil pump is furnished to the 1921 Deemster model; the re-designed clutch of which incorporates spring-loaded plungers that operate under the fabric to make the engagement easier. Stay rods have been fitted between the back axle and the front of the torque tube. A tie rod is placed underneath the casing. The gear and brake levers are in a more convenient position, being further back. An extra air inlet, controllable from the driver's seat, is fitted. The dickey seat is now wide enough to accommodate two passengers; and the boot to the body is larger and longer. (Stand 315, White City.) The chief novelty of the G.W.K., which has been the most successful of the friction-driven cars, is the placing of the four-cylinder engine in the ordinary position in the front part of the chassis; the drive is taken direct to the disc placed slightly in front of the rear axle. (Stand 335, White City.) Among new cars introduced at this season is a twin-cylinder, horizontally opposed, air-cooled power plant disposed immediately behind the driver's seat in the chassis of the "Unit No. 1." The power transmission is by friction discs, the final drive from the driven disc shaft being by chain through a reduction gearbox. The dummy radiator provides accommodation for a petrol can and spares; the steering is on the combined ratchet and bobbin type, ready means being provided for adjusting the cables; and the suspension is by quarter elliptic springs fore and aft. The adjustable seats of hammock type are unupholstered. (Stand 333, White City.)

The Accessory Section.

In the space at disposal it is impossible to deal adequately with the accessory section. It is not even possible to deal fully with such a display as that of Brown Brothers (Stand 169, Olympia) who pioneered the Duco spring gaiters that are standardized on a large number of cars to be seen in the buildings at the White City and Olympia. One of this firm's interesting novelties is the Duplex mechanical tyre pump driven off some rotating part of the engine and consisting of a double piston actuated by a crank which engages with a brass bush sliding between the two portions of the piston. This bush, which has a square plug, acts as a slide valve. Another of this firm's novelties is the Apex plug cleaner, which is an aluminium chamber containing a multitude of steel needles. If this is half filled with petrol and a plug is screwed into it, when shaken violently it is claimed that both the points and the interior of the plug are cleaned rapidly. Again, as to dashboard fitments, there is a neat form of Duco clock, which is very flat, the method of attaching it to the dashboard being concealed. There are a hundred and one ingenious little tools which will appeal particularly to medical men by reason of neatness. Several will save the owner-driver much labour when giving that little timely attention to his car that saves the running up of a repair bill.

The exhibit of the Zenith Carburettor Company (Stand 191, Olympia) embraces a full range of their carburettors for all types of cars; also various sectioned special carburettors with complete inlet pipes and adaptors for fitting easily to well-known cars. A feature is the special model for Ford cars that can be fitted without any alterations and which, it is claimed, effects a great improvement in the running. This will work quite well with benzol in the case of those owners who are lucky enough to be able to obtain supplies of that form of motor fuel.

Novelties Among the Tyre Exhibits.

If it may be written in general that there is a relative absence of novelties among the car exhibits, assuredly the same cannot be said in regard to the tyres and wheels displayed. Take as an illustration of sheer variety of enterprise under this head the display of the Dunlop Rubber Company (Stand 221, Olympia), which embraces Magnum type tyres with beaded edges for all standard sizes, including the new series of British standard sizes for light cars. Incidentally, it may be said that this work of the tyre organization in standardizing sizes also makes for better production and cheaper tyres. In the course of a few years the motor manufacturers of this country will not be calling on the tyre industry to supply such an unnecessarily wide variety of types as they have done in the past. As it is, our manufacturers are to be commended for making tyres of patterns suitable for American cars as well as for all the sizes requisite for British vehicles. There is introduced the full moulded

Dunlop tyre with special rubber non-skid tread built on multiple cord casings. These have rims suitable either for beaded edge or for straight-sided tyres, the latter having removable side flanges. Moreover, the Dunlop detachable wheels displayed embrace the wire, pressed steel, wood, corrugated disc, and combination disc and wire varieties.

The outstanding novelty on the Michelin stand (Stand 236, Olympia) is the new cable cover, produced by this company for the first time in December last, and since found so satisfactory in service that the firm is making a leading feature of it. The points it possesses in notable degree embrace resilience, easy fitting owing to its suppleness, and relatively large air capacity. The initial cost is about 15 per cent. more than for tyres constructed on the ordinary principle. But this is said to be more than offset by the longer wearing life. The company's tests embraced the running under the same conditions of load, pressure, and speed of an 880 by 120 mm. canvas tyre and a cable cover of similar size over an obstacle 2 in. high and 2½ in. wide. By means of the apparatus employed for observing this test it was found that the canvas cover absorbed nine-sixteenths of an inch of movement, while the cable cover absorbed a full inch, indicating greater capacity for shock absorption. Next came the endeavour to discover what energy was needed to drive these two types of tyres at a load of 1,320 lb. at 70 lb. pressure. The tyres were drawn along by a fly-wheel worked by an electric motor. The consumption of current showed that the canvas cover absorbed 1.8 h.p. and the cable cover 1.4 h.p., a difference of nearly ½ h.p., which would represent 2 h.p. on the four wheels of a car. To test this matter another way, an electric car was equipped with 895 mm. by 135 mm. covers, first of the canvas, then of the cable varieties. Under similar conditions it was found that the canvas cover absorbed 15.6 h.p. and the cable cover 12.8 h.p., a difference of nearly 3 h.p. in favour of the cable tyre. Another test consisted in letting a car roll down a gradient on to a level smooth-surfaced road until it came to rest. With canvas covers the car ran 318 yards, achieving a maximum speed of 18.64 miles per hour. With the new cable type of cover the car ran 440 yards along the level and attained a maximum speed of 20.50 miles per hour. Many other tests conducted might be cited, but sufficient have been mentioned to indicate that here is a very interesting innovation in pneumatic tyre construction. The other Michelin exhibits embrace the solid steel disc wheel introduced last year, after it had been used extensively in France before the war. The adoption of similar hubs for the whole series of these wheels of various sizes secures interchangeability. The nuts securing the wheel to the hubs are so formed that the rotation of the wheel tends to tighten the bolts, so that they cannot work loose. It is comparatively a simple matter to adapt a car to take a Michelin wheel. The company is stocking hubs for all the most popular makes of cars.

The main feature both of the all-rubber and of the steel-studded Beldam tyres (Stand 276, White City) consists of a long narrow strip of rubber standing up from the rest of the tyre, and supported on either side by protruded Vees. This design provides for the natural displacement of the rubber, and minimizes the "heaping up" which occurs in some makes of tyres. The projecting Vees also provide an anchorage and greatly reduce the possibilities of side-slip, or lack of grip, at starting a car, which is often a cause of wear. The Beldam steel-studded tyre has a diamond-shaped rubber non-skid pattern tread with oval pockets, in which are inserted steel studs whose surface is on the level of the surface of the rubber tread.

What is called the Rapson unpuncturable pneumatic tyre is displayed by Oylers Limited (Stand 226, Olympia). These pneumatic tyres are made in two types, the Richmond with heavy, square, non-skid tread specially constructed to withstand the strain and stress on the driving wheels of heavy and powerful cars; and the Richmond heavy round non-skid tyre designed for the front wheels of heavy cars to ensure easy steering, and recommended, besides, as an all-round tyre for light cars. These pneumatic tyres are made at the new and elaborately equipped factory at Richmond.

THE first meeting of the German Dermatological Society since the war will be held at Hamburg at Whitsuntide, 1921. The office of the society is at Breslau.

A GRANT of £5,000 from the British Red Cross Society has enabled the board of the Royal Infirmary, Sheffield, to add another story containing twenty-one bedrooms and sanitary blocks to the existing nurses' house. The nursing staff is being increased and their hours of duty reduced.

Correspondence.

A SOLUTION OF THE HOSPITAL PROBLEM.

SIR,—I have read Colonel Griffiths's letter with interest, and am convinced that he has got at the heart of the question. Though voluntary hospitals have rendered splendid services to the nation in the past, circumstances are now against them—too strong for them. During the more active period of hospital development, from the middle to the end of the nineteenth century, the boards of management undertook and carried out duties that could not have been so well performed by any other body; but under the new and profoundly changed conditions, and as the result of the financial straits to which those who have the management of the hospitals have been reduced, a new financial scheme with a different, and probably in the long run a sounder, basis must be devised. During the past three or four years I have seen much of hospitals in every part of the kingdom; coming into close contact with management, staff—lay and professional—and patients alike, and looking at the question from the point of view of all three groups I am satisfied that the levy on employees and employers (see No. 4 of Colonel Griffiths's letter), pressing lightly on individuals—even on employers of large numbers of workers—but providing, in bulk, a sum adequate to meet the cost of great developments, presents the most feasible scheme yet put forward.

For some time past the working man has come slowly but surely to appreciate the value of hospitals to him and his family, and has helped willingly to finance them, especially through organized collections in the workshops throughout the country—more so in the provinces than in London. But such support as has been given is insignificant in comparison with the amount needed adequately to maintain and extend these institutions. I am convinced that the time is ripe for the matter to be again brought before them with the object of gaining the means to place hospitals on a permanent footing. This the scheme now suggested appears to do. The working man, with his present income, is undoubtedly able to make the small weekly contribution suggested as being necessary for the upkeep of an institution in which his interests are so deeply concerned. Moreover, if I know anything of him, his spirit of independence only awaits instruction as to the best method of making it. In this way the few Poor Law infirmaries which now serve as general hospitals in large cities might have their status raised, and come to play a greater part than they do at present (the King's College Hospital authorities appreciate this), and the voluntary hospital expanded to meet needs, some of them very acute, recognized by all.

The hospital question (*pace* the *Times* medical correspondent) is more closely bound up with the housing question than is generally realized. Provide ample hospital accommodation, not only for fever and infectious cases but for "lying-in" and special cases, and, in addition to serious accidents or disease, even for minor affections, and the gravity of the housing question will be greatly diminished, and the gain to the health of the community far more than proportionately great.

Not the least of the advantages accruing under Colonel Griffiths's scheme would be the closer co-operation ensured between the general practitioner and the specialist—greatly to the advantage of the patient. We have arrived at a point at which the money subscribed voluntarily for the improvement of the conditions of hospital life is utterly inadequate, but with the resources that could be placed at the disposal of the hospital authorities as the result of a hospital levy the status of the Poor Law hospitals could be raised, the work of the general and special hospitals greatly extended and improved, and further provision made for others who at present are in sore need of it. Surely it is time to extend to the middle classes some of the splendid facilities provided for the working classes in the voluntary hospitals. Heavily taxed and rated, some consideration is due to them. Cannot they be allowed to share these hospital advantages should they claim the privilege?

Under the voluntary system it has been almost essential to the collection of subscriptions that elaborate buildings, sometimes not well adapted to the purpose they have to

serve, should be erected in prominent positions. The hospital must advertise itself. But are such costly buildings necessary? It will be remembered by those who visited the Pathological Museum of the Association Meeting at Cambridge this year, that Colonel Griffiths exhibited a hospital less costly to build, more appropriate and better fitted for the work to be done, more convenient and more economical to administer than the usual palatial buildings erected. Those who took the opportunity of studying his model—that of a lying-in hospital—could but be convinced of the saving to be effected by the adoption of buildings of such design.

It is high time that medical men should join in the discussion as to the provision of hospital accommodation, for, after all, are they not the referees in the matter? Can they shirk the responsibility laid on them? Does not their calling demand that they shall exert all their influence to obtain for their patients conditions they have known since their student days to be essential to assured and rapid recovery of health?—I am, etc.,

Cambridge, Nov. 1st. G. Sims Woodhead.

Sir,—The remarks of Mr. Joseph Griffiths which appeared in the Journal of October 30th ought not to pass unchallenged, because, if his ideas were accepted as representing those of the medical profession at large, a serious blow might be struck by the Ministry of Health both at the voluntary hospitals and at the interests of the profession.

With Mr. Griffiths's opening hypothesis that (1) more money and (2) more accommodation for the treatment of patients are needed, nobody, I suppose, will disagree. It is the proposals he makes for securing each that are, in my opinion, so objectionable. Mr. Griffiths enumerates the sources from which the money might conceivably be obtained, and I agree with him that there are insuperable objections against obtaining it from (1) imperial taxes and (2) local rates. Mr. Griffiths appears to reject all idea of continuing to run the hospitals on voluntary subscriptions and donations, and this leaves him with only compulsory contributions from employers and employees to fall back upon. He goes on to urge that these compulsory subscriptions should also be utilized to provide suitable accommodation for children and maternity cases. In his next paragraph he appears to urge that the professional classes "and others" should avail themselves of the advantages such hospitals would afford! Why should employers of labour and employees pay for the treatment of children, women, the professional classes, and others in institutions which Mr. Griffiths argues cannot or must not be supported by imperial taxation or from the local rates? And what patients, if any, would Mr. Griffiths leave to the private general practitioner and private consulting surgeon and physician? Would he abolish at one stroke all the nursing homes in which much capital has been invested, and abolish such institutions as the new Masonic Nursing Home and Hospital? True, he adds that the general practitioner may be graciously permitted to retain contact with his patients, "of whatever grade in social life," whilst in the hands of the specialist in one of these hospitals supported by employers and employees, and might be allowed to visit him and consult with the staff of these wonderful institutions, and—crowning mercy of all—might even be allowed to study there without expense! Why, for example, a barrister or engineer should be treated when sick at the expense of employers of labour and employees (that is, working men) Mr. Griffiths does not inform us, and I can imagine the goodwill with which the average working man would pay his contributions towards this deserving object.

That hospital finance is in a parlous state every one is well aware. I communicated some time ago with the King Edward's Hospital Fund some rough ideas of mine which might assist to bring in funds and preserve the voluntary character of our chief hospitals, and the idea is, I am informed, receiving careful consideration by that fund and by the Red Cross Fund, to whom the former referred it.

Briefly, my idea is to make certain small donations to hospitals a matter of "good form." Everyone tips a waiter at a restaurant or tea-room, a taxi-driver, and many other people, not because tips to them are compulsory, but because it is so well recognized that it is "bad form" not to do so that few are mean enough or have sufficient pluck to neglect to do so. By a process of advertising or—as our American cousins would call it—"boosting," it might be made a question of "good form" to pay 5 per cent. or 10 per cent. on restaurant and hotel bills to one of the hospital funds, the money being collected and handed over by the proprietors of the establishments in question. Thus at the bottom of the hotel bill might be printed: "5 per cent. of the above account (x/0) is requested in aid of the hospital fund. Please do not forget to purchase stamps for that amount and have them affixed to this bill." I believe that some scheme on these lines might be gradually introduced, until it was as well recognized that it is "bad form" not to tip the hospitals after a restaurant dinner as not to tip the waiter. Stockbrokers might be persuaded to adopt the same kind of method, and ask for a voluntary percentage (say ½ per cent.) on investments on their contract notes. Sellers of luxuries—like jewellery, motor cars, furs, etc.—might also be roped in to get *voluntary* donations in this way. There would be no compulsion, except that strongest of all compelling forces, public opinion, as to what is "good form." At the beginning of the war Lord Kitchener embarked on just such a scheme to rope men into the voluntary army, and notices on hoardings, cabs, carts, etc., calling for volunteers, were familiar in those times. It might be invidious to inquire how many men responded to the call, not because they really were anxious to do so, but because they knew it was "shocking form" for a healthy single young man to be seen out of khaki. It is undoubtedly "bad form" for wealthy householders at present to decline to subscribe to their local hospital at least, but as nobody knows or inquires whether they do so or not it is common knowledge that the majority repudiate their obligation; but if those who did not subscribe were known, "good form" would make the large majority reconsider the matter and do their duty.

From this consideration I thought of yet another plan, which Mr. Griffiths unwittingly supports in his letter. This is the idea that it should be made a matter of "good form" for every householder, every head of a household, flat, or even tenement, to keep in full view in his hall or entrance a collecting box for the hospital funds; that he should voluntarily place therein 1d. a week for every soul sleeping under his roof; that it should be a matter of "good form" for guests at every house after, say, a dinner party, reception, or other entertainment, to "tip" the hospitals by putting something in this box, just as one tips the servant who fetches one's car or cab. The absence of such a box would be a public confession that the householder cared naught for "good form," and in time few houses would be found without a collecting box. One penny a week for every one in London would amount to 3 or 4 million pounds a year for the hospitals, and poor and rich alike would be subscribing, and not workmen and employers alone—and that compulsorily—as in Mr. Griffiths's scheme. Some initial expense would be entailed in making and distributing the boxes, and some method would have to be devised to prevent subscribers from "borrowing" back by stealing from them, but I am confident that the scheme could be worked. Some further expense of a more permanent nature would be necessary, in order to collect the proceeds, but if London boxes alone brought in millions a year, I think the scheme would pay nevertheless.

Taking an average household—family and servants—as six, the average householder would be paying £1 6s. a year in fifty-two instalments, surely not an overwhelming burden.

By means such as these the voluntary nature of the hospitals might be preserved from bureaucratic muddling, and systems of *compulsory* taxation to support hospitals could be avoided. The hospitals might still continue to make small charges to those patients who genuinely could not get satisfactory treatment outside the hospital walls—but any scheme, like Mr. Griffiths's, which aims at providing free treatment for "the professional classes and others" at the expense of employers and employees is to be absolutely condemned. Medical men already are taxed equally with the general public for the doubtful privilege of affording free treatment for venereal patients, for cases of infectious disease, etc.—in other words the profession is taxed in order to partially strangle itself! If Mr. Griffiths's scheme were allowed to pass unchallenged, there would be nothing left for the private practitioner at all, excepting death and the tax collector (or what, in my opinion, would be yet a worse fate—the panel)!—I am, etc.,

London, W.C., Oct. 30th. Arthur S. Morley.

Sir,—I apologize for sending the following so soon after the letter you kindly inserted last week; indeed, nothing but the feeling that so many new and undigested policies are now being so rapidly put forward prompts me to do so.

St. Mary's Hospital Medical School has acquired the privilege to utilize the clinical material at the local Poor Law Infirmary in the education of its students. King's College Medical School is said to be seeking to obtain similar privileges—under different conditions—at the Camberwell Poor Law Infirmary. Is the policy underlying this new departure in the interest of (1) medical education, (2) the medical profession, and (3) the public? I believe it is not in the interest of any of them.

Even with the extension of clinical facilities in these and like hospitals there will still be something very much lacking in medical education. The newly qualified man will have received much too little of that technical training essential to the doctor licensed to practise; all doctors entering upon practice *will still have to teach themselves, after qualifying*, many if not most of the methods used in the detection of disease and in its cure; the doctors will, as of old, continue to compete with one another for honorary posts in order that they may obtain opportunities for the acquisition of knowledge and skill and for the advantage the appropriate and accompanying advertisement gives; and the public will gain no adequate or efficient medical service.

Reform in medical education is urgently needed, and the establishment of large hospitals in populous districts throughout the country is essential as a preliminary step, and immediately after or at the same time the abolition of the present system of honorary medical officers. Large hospitals and many of them are required for the people; and their full utilization would be advantageous for the thorough technical training of medical students in order that they may be properly fitted for their life's work. The services of the best specialists would be called for, specialists who would devote their whole time to this very highly important work for the benefit of the sick and injured in the community; and the specialists should be men who, by education and experience, would be competent to train young men in the practical work that lies before them. This, the most difficult task of the medical teacher, has to a very large extent been neglected since the abolition of the apprenticeship and unqualified assistantship systems. Has not the time come for the restoration of that training, not in its former but in a new form? Only with large hospitals would this be possible. Hospitals of 1,000 beds at least are now needed, no less in the interests of medical education than in those of the people, the technical training and hospital service being interdependent, the efficiency of the latter being directly proportional to the success of the former.

Without reformation on some such lines our hospital service must inevitably fall behind that in other countries, and progress in the science and art of medicine in its various branches will, in my opinion, be very greatly hampered, to the serious detriment of our present enviable reputation in the medical world.—I am, etc.,

Cambridge, Nov. 1st. JOSEPH GRIFFITHS.

THE WASSERMANN REACTION.

SIR,—Your correspondent Mr. H. W. Bayly (August 7th, 1920) complains of "contradictory results at different laboratories," of "contradictory results on different occasions at the same laboratory." Previous correspondents complained of "different results from different portions of the same serum at the same laboratory." To the serious laboratory worker this sort of correspondence is quite amusing, and not worth the trouble of contradicting.

Mr. Bayly is appealing to your readers to give him the help of their experience, and to forward him instances of apparent unreliability of the Wassermann reaction, and is proposing to publish the practitioner's name in connexion with the evidence forwarded. May I suggest to Mr. Bayly that he publish the names of the laboratories from which contradictory results emanate? It would be a useful guide to your readers as to which laboratories should be shunned.—I am, etc.,

ALFRED E. FINCKH, M.B.Sydney.

Pathological Laboratory, Sydney, N.S.W., Sept. 21st.

"DEATH AFTER TONSILLECTOMY."

SIR,—My note on the *post-mortem* findings in this case was written to draw attention to certain features of the endocrine gland system in the case rather than for the purpose of initiating a discussion on the demerits of chloroform anaesthesia; if those with special knowledge of the subject think that it has not been sufficiently thrashed out, here is a peg on which to hang such a discussion. My own claims to any specialized knowledge of anaesthetics are no greater than those of your correspondent Mr. Nance; and the anaesthetist who chose chloroform has left this country—unhampered by the law—so that I cannot supply a direct reply to the first of Mr. Nance's queries. As regards the second, I imagine that the necessity for carrying through some twenty-four operations in one afternoon may have prevented the team of surgeon, anaesthetist, and nurse from combining to spend half an hour in watching the patient in the recovery room; I think, however, that it is improbable that such a proceeding would have obviated the fatal issue, based as this was on a pathological state of the boy's organs which could not be detected prior to the operation.

I find that in the course of ten years considerably more than 10,000 operations for tonsillectomy have been carried out here, with only one fatality—surely not a bad record for the surgeon and anaesthetists concerned.—I am, etc.,

Swansea, Nov. 1st. A. F. SLADDEN, M.D.Oxon.

TUBERCULOUS MILK.

SIR,—Dr. Nicol Galbraith writes in your issue of October 16th as follows: "Scientific leaders amongst medical men should be absolutely sure of their ground before they make statements," etc. May I suggest that medical officers of health should be equally sure of their ground before they attribute to authors words which they have not written?

Dr. Galbraith has evidently not read what I have written, but merely contented himself by commenting on what appeared in a review. If he will look into *The Shibboleths of Tuberculosis* he will find that I do not in any way "promulgate this half truth." On the contrary, I make the definite statement that "I should . . . altogether neglect this haphazard uncontrolled source of possible immunization."—I am, etc.,

MARCUS PATERSON.

Colindale Hospital, Hendon, Oct. 26th.

SIR,—I have no intention of discussing the question raised in Dr. Galbraith's letter, on which I maintain an open mind, but merely to reply to a point raised by Mr. Ivatts in your issue of October 23rd—namely, whether it is possible to make susceptible animals immune against tuberculosis. I can assure him that immunization against tuberculosis is an established fact. Of this there is plenty of evidence, but I will be content with quoting a small piece which came under my own observation.

The last Royal Commission on Tuberculosis[1] caused twelve calves to be immunized in various ways by injection of tubercle bacilli, bovine or human. Some three months after the calves were subjected to the somewhat drastic test of the subcutaneous injection of 50 mg. of young bovine tubercle bacilli, a dose which almost invariably proved fatal within ninety days to control animals. Of the twelve calves which had been subjected to immunizing doses, nine withstood the test injections very well and showed when, three months later, they were killed in good health "only for the most part slight and non-progressive lesions of tuberculosis in the internal organs," one showed when killed "general tuberculosis less severe than in any of the controls," and two died of acute general tuberculosis.

The conclusions drawn by Drs. A. S. Griffith and F. Griffith, who wrote the accounts, were that "the experiments clearly show that . . . the resistance of the calf can be raised sufficiently to protect it against the inoculation of a dose of bovine tubercle bacilli which has been shown to be capable of setting up severe and fatal tuberculosis in a calf not so protected." "They show further that this degree of resistance is not always produced."

Immunization to tubercle of susceptible animals, then, is a fact experimentally established. But the immunity is not of a high order, like that which can be produced against diphtheria or tetanus. Moreover, it is uncertain, being liable to fail, apparently, in certain individuals. But what is more pertinent to the question at issue is that it is relatively transient. This point is not touched by the experiments of the Commission; but it seems to be generally agreed among veterinary authorities that it does not endure for more than a year, or possibly two at the outside; and if we may assume, as I think we may, that the same is true of man, I can only conceive of an immunity which shall have an important influence upon human tuberculosis as caused, not by abortive infections

[1] Royal Commission on Tuberculosis. Final Report. App. vol. iii (Cd. 5893), p. 265.

which become cured outright unless, indeed, these are frequently repeated, but by chronic lesions which remain for long periods not altogether inactive.—I am, etc.,

Louis Cobbett.

Pathological Laboratory, Cambridge,
Oct. 25th.

Sir,—In your issue of October 23rd the letter of Dr. E. R. Ivatts replies to those of Drs. E. Cautley and C. Muthu. I agree with Dr. Ivatts "that there is no positive evidence of immunization in tuberculosis at all." After being a medical officer in Brompton Hospital for eight months I, with four other residents, gave a positive von Pirquet reaction. This may prove infection, but certainly not immunity. A child with virulent diphtheria, when being swabbed, coughed in my face. Two days after I gave a positive swab, but did not develop clinical diphtheria. I do not therefore believe I am immune to diphtheria.

My statement regarding the annual 10,000 child deaths from tuberculosis is based chiefly on the evidence of the Departmental Committee on Tuberculosis (1913). To this I refer Dr. Cautley, and draw his attention particularly to Sir H. J. Stiles's memorandum. The work of the Edinburgh School proves conclusively that the ingestion of tuberculous milk can infect human beings with tuberculosis. Of cases of bone and joint tubercle investigated by Dr. Fraser, 60 per cent. were due to the bovine bacillus, 37 per cent. to the human bacillus and 3 per cent. to both forms. I know of a child who developed tuberculosis about age 4 and who died recently. He was without any doubt infected by tuberculous milk. The cow was one of two kept for family use; it was destroyed and found to be suffering from generalized tuberculosis. The family has a tubercle-free history. It is well known that the death rate from pulmonary tuberculosis increases as age increases, while that from other forms of tuberculosis is greatest in the first years of life. Sir George Newman in his contribution to the final report of the above Committee gives remarkable statistics proving this. Non-pulmonary tuberculosis is generally recognized to be the result of infection by ingestion.

That advanced cases of pulmonary tuberculosis are a great source of infection is acknowledged by all medical officers of health. No well equipped and organized health area is without its hospital for the comfortable segregation of such cases. The efficacy of this will be more evident when powers for compulsory isolation are granted to public health authorities. To be logical, advocates of the theory in question should allow these "open" cases to remain in their homes, infect their relatives, and so confer on them "immunity." I know of one family where unfortunately the "immunity dose" was so over-estimated that five died in one year, and another is now an active case.

We who are engaged in combating this scourge of humanity in every way possible, including the improvement of the social and moral conditions of "the soil," are waiting for guidance from those best able to advise as to the most effective measures to adopt—hence my letter.

I would ask Drs. Cautley, Muthu, and any others with special experience in tuberculosis the following questions:

1. Do they advise the compulsory isolation of advanced cases of tuberculosis?
2. Are they prepared to advise the Ministry of Health to scrap Sections 3, 4, and 5 of the Milk and Dairies (Consolidation) Bill now before Parliament?

These sections have evidently been drafted on the conviction that it is injurious to the public health that tuberculous milk should be allowed to be sold for human food.—I am, etc.,

S. Nicol Galbraith,
Medical Officer of Health,

Newark-on-Trent, Oct. 25th.

Sir,—As a mere dairyman I have been somewhat confused by the letters on tuberculous milk which have been appearing in the British Medical Journal.

In 1914 the Tuberculosis Order came into force. It is true that it has been in abeyance ever since the war broke out, but we understand that it is likely to be reinforced, and that its object is to prevent the entrance of bovine tubercle bacilli into milk which is to be given to human beings, more especially to children.

The correspondence appearing in your columns makes one wonder why the Tuberculosis Order was ever issued, since it appears that there is no agreement at all upon this question amongst medical authorities. If the medical profession considers that the immunization of children by unknown doses of bovine tubercle bacilli of unknown virulence acting upon human beings of unknown resistance immunizes them against human tuberculosis and is therefore advantageous, let some authoritative body say so; but if not, it would be of the greatest assistance to those of us who are working in the dairy world, if such statements as have been recently made in your correspondence columns ceased to appear; for those who write them have no conception of the difficulty which they create by their attitude of mind for those of us who are working in the dairy world.

It must be remembered that the average dairy farmer reads his trade journal; that his trade journal is naturally written to please him; that Koch's statements concerning bovine tuberculosis are still reiterated in those journals; and that all assertions which tend to minimize the gravity of infection with bovine tuberculosis are seized with avidity.

I can say with perfect truth that if the doctors wish to eliminate bovine tuberculosis the best of the dairy farmers are ready and willing to help them.—I am, etc.,

R. Stenhouse Williams.

University College, Reading.
Research Institute in Dairying, Oct. 28th.

INFLUENCE OF DILUTION ON THE TOXICITY OF ALCOHOL.

Sir,—Adverting to Dr. Vernon's experiments on dilute alcohol and drunkenness, recorded in the Journal of October 23rd, I made some similar observations, not on myself, but on a German guide in Berlin in 1912.

This man easily and regularly drank over twenty litres of beer in the day. I paid for them myself, so the facts are engraven on my memory. He started with a couple before breakfast, four between breakfast and lunch, a couple of litres at lunch, three more before dinner, and the remainder easily between dinner and bedtime. A little of it was Pilsener—4 to 5 per cent. alcohol—but most of it was the stronger, Munich—6 to 8 per cent. of alcohol.

My German friend thus consumed over thirty-seven ounces of absolute alcohol in the day—at my expense—but he did not exhibit the least sign of inebriety.

The case proved to my satisfaction that where alcohol is diluted twenty or thirty times with water it is almost non-intoxicant.

Seeing the enormous quantities of Bock consumed in Berlin I sought in the hospitals evidences of cirrhosis or other signs of alcoholic poisoning. I found none—more than would be yielded by any other city of its size. In Munich, I am told, there are some evidences of cardiac hypertrophy, due simply to the strain of pumping so many gallons of fluid through the kidneys.—I am, etc.,

J. C. McWalter, M.D., LL.D., M.R.I.A.

Dublin, Oct. 24th.

INCIPIENT MENTAL DISORDER.

Sir,—The new mental clause introduced in the hidden meshes of the Ministry of Health (Miscellaneous Provisions) Bill, referred to in the British Medical Journal of August 28th, 1920, p. 332, is by no means an innovation. Ever since the year 1905 the Lunacy Board has put forward bill after bill, with a view to extending its jurisdiction over the "*uncertified*," only to be met by a refusal on the part of a discerning legislature curiously imbued with "a meticulous concern for the rights of the subject."

The proposal embodied in Clause 10 is thus described in a Government memorandum (the italics are mine):

"Clause 10 enables persons suffering from incipient mental disorder, but not certified under the Lunacy Acts, to be received, with their own consent, in institutions approved by the Minister of Health, for a period of six months, *without exposing the persons receiving them to possible penalties under the Lunacy Act*. The importance of early treatment of these cases, wholly dissociated from the machinery of the Lunacy Act, is now generally recognized, and the powers given by the clause will be especially useful in cases of shell-shock and similar nervous disorders."

The persons to be "protected" are those who are anxious to take charge of the mental case *for profit*, who are to be hereby relieved of any liability for infringement

of Sec. 315 of the Act, which imposes a penalty for detention effected without compliance with the provisions of the Act—that is, without the judicial investigation implied in certification.

Certification is essentially a bulwark of protection for those whose freedom is endangered. The annulling of S. 315 by this surreptitious method exposes such individuals to imminent peril. A mental case cannot be regarded solely from a medical point of view, except in cases where detention is unnecessary. Once liberty is imperilled, the need for legal safeguard arises. The "stigma" which is so much stressed (more especially by mental specialists) is not caused by the protecting procedure, but by the circumstances of indignity accompanying detention. Let the system be revolutionized, and hostels be provided for early "uncertifiable" cases (see Clause 11) run on a purely hospital footing and free from connexion with lunacy administration, and the "stigma" will disappear with the emergence of a wholly different method of treatment—that is, a method characterized by hope, encouragement, occupations of interest, and a cheerful outlook on the future, instead of bolts and bars, depression, vacancy, and dread. Nothing could be worse for the slightly unbalanced mind than the present atmosphere obtaining in most mental institutions.

Superficially, Clause 10 would seem to supply conditions for voluntary entrance and voluntary exit; but many are the subterfuges by which this can be evaded. And if entirely voluntary, why is there mention of a period of "six months"? The patient is to be subject to secret regulations, and may, moreover, be secretly certified at any moment. The public are not likely to come voluntarily to homes of this description, which are certain to be regarded (especially by ex-service men) as "feeders" to asylums. What is needed in the present temper of the nation is not a proposal which will naturally be resented, but a truly *preventive measure*, statesmanlike in character, which, by intercepting mental cases on the downward track, will at the same time tend to relieve the taxpayer by bringing about a reduction in our hugh asylum expenditure.—I am, etc.,

London, W., Oct. 23rd. S. E. White, M.B.

Obituary.

WILLIAM BRUCE, M.A., M.D., LL.D.Aberd., Dingwall.

Dr. William Bruce, whose death we announced last week, was born at Keig, Aberdeenshire, in 1835. He graduated M.A. at King's College, Aberdeen, in 1855, and M.D. in 1858. Soon afterwards he began practice at Crimond, where he founded the second cottage hospital in Scotland. He removed to Dingwall in 1870, and in 1891 gave up general practice to become M.O.H. for Ross and Cromarty, but he still continued as a consulting physician to the Strathpeffer Spa. On the passing of the Medical Act of 1886 granting direct representation of the profession on the General Medical Council he was elected the representative for Scotland, and he held that post for twenty years.

Dr. William Bruce took great interest in local affairs, and had been a governor of the North of Scotland College of Agriculture, chairman of the local parish council, and a member of the Dingwall School Board. He had also served as consulting surgeon to the Ross Memorial Hospital. He was examiner in public health for some years at the University of Aberdeen, and in 1891 the University conferred upon him the honorary degree of LL.D.

On the occasion of his jubilee as a medical practitioner, in October, 1908, he was presented with a congratulatory address by the Northern Counties of Scotland Branch of the British Medical Association. In making the presentation Dr. W. de Watteville, President of the Branch, spoke of Dr. Bruce's work for the profession, and said he was known to them as "a staunch and loyal friend, a wise counsellor, a man of strong convictions and dauntless courage."

He is survived by his widow, two sons and four daughters, the second son being Dr. Ironside Bruce, physician to the æ-ray and electrical department of Charing Cross Hospital. The funeral took place on October 27th, at Fodderty Churchyard, Strathpeffer, and was attended by a large number of friends and neighbours, including the Lord Lieutenant and Vice-Lieutenant of the county.

JESSIE MARGARET MURRAY, M.D., B.S.Durham.

The death of Dr. Jessie Murray on September 25th at the age of 53, after a long and painful illness, removes from many fields of activity a brilliant and many-sided personality whose loss is lamented by a large circle of friends in London and the provinces. Shortly before the operation which preceded her many months of suffering she had returned to London, after proceeding to the M.D. degree, apparently in perfect health and ready to throw herself with characteristic energy into her many useful activities, but an exacerbation of certain symptoms, which only her remarkable strength of character had prevented from becoming a serious handicap during her adult life, rendered an operation necessary.

Dr. Murray qualified in 1909, at a time when medical women had not the facilities in post-graduate work that are now available, and when she settled in practice she lost no opportunity of equipping herself by special studies, which soon became focussed in psychological medicine and in sociology. From her earliest days of practice (writes a colleague) she was quick to perceive the psychological element in many cases of illness, and her native insight into this factor enhanced the value of her advice as a physician. She took up the study of psychology at University College, London, and was ingenious and resourceful in adapting to the needs of her patients data which have since been elaborated by other workers into the "vocational psychology" of recent years. This enabled her to attack vocational misfits and domestic disharmonies which often stood in the way of the patient's recovery. But she did not rest satisfied with the applications of laboratory psychology, and turned her attention to more searching methods of investigating mental disharmony. From a study of Janet's methods in Paris she passed to the methods of the psycho-analytic school. In order to bring the latest fruits of clinical psychology within the reach of the patient of small means, she was the leading spirit in the group which founded the Medico-Psychological Clinic. Her desire to extend the scope of the newer psychology did not, however, stop at its purely medical applications; she was equally anxious that its data should be brought within the reach of students in educational and sociological fields. One of her aims was to establish a working understanding between the physician and the psychologist in the region where their interests touch at so many points, and where their co operation would be of great value to the individual and to the community. During the war she shouldered heavy additional responsibilities, entailing long hours and exhausting work, and it is probable that this period of strain was partly responsible for her untimely death.

The late Dr. Samuel Sloan.

Professor Murdoch Cameron, M.D., writes: After acting as an assistant in a country town Dr. Samuel Sloan began practice in his native city in a working-class district at a time when the fees for visits and confinements were very small indeed. In a few years he had a large if not lucrative practice, and was deservedly trusted and beloved by his patients, as he never spared himself although frequently overworked. An appointment on the staff of the Maternity Hospital gave him an opportunity to deal with complicated cases of labour, with the result that he was early recognized as a specialist in midwifery. His merit was rewarded by his appointment as an examiner in midwifery both in Glasgow and Edinburgh, the duties of which he performed with great credit. During these early years gynaecology also claimed his attention, attracted no doubt, like many others, by the brilliant successes of Spencer Wells and Tait. Operative procedures in this department did not attract him, but he devoted himself to other methods of treatment. Electrolysis as advocated by Apostoli gave a great stimulus to the use of electro-therapy in the practice of gynaecology, and for twenty years Dr. Sloan has been a strong advocate for its use in some form. He was a man of culture, and was valued by his colleagues and professional brethren. He was always courteous in his manner, and very considerate of the feelings of others. A large attendance of medical

men and friends at his funeral in the Necropolis testified to the esteem in which he was held by those who knew him best.

Mr. Willoughby Furner of Hove died on October 19th, aged 72, after a long illness. He received his medical education at St. Bartholomew's Hospital, where he was senior scholar in 1871, and won the Foster and Treasurer's prizes. He became M.R.C.S. and L.S.A. in 1871 and F.R.C.S.Eng. two years later, graduating M.D.Durh. in 1891. He had filled the offices of demonstrator of anatomy and operative surgery, house-surgeon and house-physician at St. Bartholomew's Hospital, and prosector at the Royal College of Surgeons of England. He was an ex-president of the Brighton and Sussex Medico-Chirurgical Society, and consulting surgeon to the Sussex County Hospital. During the war he was medical officer and administrator of the auxiliary hospital in Third Avenue, Hove, and in recognition of his services he received the decoration of O.B.E.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The third M.B. examination will be held from December 14th to 23rd; the M.Ch. examination from December 16th to 18th. The names of candidates for the former should be sent to the Registrary by November 23rd, and those for the latter by November 25th.

The following medical degrees were conferred at a congregation held on October 29th:

M.D.—R. Hodson, V. H. M. Coates.
M.B., B.Ch.—E. F. S. Gordon.
M.B.—W. F. R. Castle, C. Grantham-Hill.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary comitia of the Royal College of Physicians of London was held on Thursday, October 28th, at 5 p.m., the President, Sir Norman Moore, in the chair.

The minutes of the Censors' Board were read and confirmed.

The following candidates, having passed the required examinations, were admitted as Members:

William Tregonwell Collier, M.B.Oxf.; Abel Evans, M.B.Lond.; George Secretan Haynes, M.D.Camb.; Wm. Henry McKinstry, M.D.Glasg.; Fredk. John Nattrass, M.D.Durh; Richard Henry Norman, M.D.Lond.; Alfred Alexander Webster Petrie, M.D.Lond.; Oliver Long Robinson, L.R.C.P.; Graham Selby Wilson, M.D.Lond.

Licences to practise physic were granted to the following ninety candidates, who had passed the required examinations:

F. F. Abdullah, S. T. Barrett, *Ivy C. Beach, A. Bearblock, F. Blake, J. P. Bonfield, A. B. Bratton, T. A. Brown, C. G. Bryan, C. H. Bullcock, *Joan K. S. Cave, G. H. A. P. Clavier, *Florence R. Clulow, S. Cohen, *Beatrice L. Collins, *Elsie E. Cowperthwaite, E. J. Crisp, A. Duffy, F. H. Edwards, A. M. El Kirdany, W. C. Elson, *Edith M. Evans, H. Evers, E. C. Faraker, A. J. Fenn, J. O'F. Fletcher, J. H. France, *Dorothy B. Gere, *Madeline Giles, F. R. Hall, C. K. J. Hamilton, G. E. Hayward, F. Hiam, J. T. S. Hoey, *Florence J. Humphreys, *Teresa J. Iyer, F. James, T. T. Jones, W. B. Jones, *Margaret H. Kingsford, *Doris G. Knowles, R. T. Lee, A. Leigh, G. M. Lewis, I. Lewis, R. A. McCabe, F. S. Maclean, R. A. Madgwick, M. Maizels, T. I. Makar, G. E. Morgan, T. S. Nelson, *Eva J. Newton, *Sybil M. Nuttall, T. D. Overend, H. A. A. Pargeter, C. L. Pasricha, R. M. Patterson, A. S. Pearson, *Winifred C. Piggott, A. D. Porter, *Mary C. Prideaux, *Norah K. Priestley, C. M. Probert, A. M. Ramzy, B. N. Rau, J. J. Redelinghuys, W. Remington, J. S. Robinson, W. G. Rose, E. T. Saravanamuttu, F. V. Squires, P. Steinberg, A. Sudki, S. C. Swinburne, G. W. Theobald, C. J. Thomas, C. Jon-Aloi Tjon-A-Man, F. A. van Coller, A. R. Walker, *Nellie Wall, K. T. K. Wallington, R. Weaver, A. D. Whitelaw, *Octavia M. Wilberforce, V. Wilkinson, E. F. Wilson, *Grace E. Winn, F. B. Yonge, J. E. Zeitlin.

* Under the Medical Act, 1876.

Diplomas in Tropical Medicine and Hygiene were granted, jointly with the Royal College of Surgeons, to the following thirteen candidates:

R. G. G. Croly, H. R. Dive, M.C., Saad el Din Ahmed El Daab, J. Fanstone, R. B. Hawes, R. Jamison, T. J. Lane, M. D. Mackenzie, G. A. S. Madgwick, F. N. Moos, Elizabeth J. O'Driscoll, E. S. Phipson, D.S.O., F. E. Reynolds.

Diplomas in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Surgeons, to the following ten candidates:

H. R. Bickerton, A. G. East, N. B. B. Fleming, V. B. Gokhale, G. F. Haycraft, S. K. Mukerjee, R. P. Ratnakar, A. W. S. Sichel, W. H. Simpson, J. H. Vaidya.

Communications were received from: (1) The Secretary of the Royal College of Surgeons, reporting proceedings of the Council of that College on July 29th and October 14th respectively. (2) Dr. Reginald Vaughan Solly, asking that the Membership resigned by him in January last may now be restored to him. This was granted. (3) The Secretary of the Federation of Medical and Allied Societies, inviting the College to a conference on November 5th upon certain clauses of a Parliamentary bill proposing the establishment of municipal hospitals. (4) The Central Midwives Board, inviting suggestions towards the revision of their rules.

A New Testament was received from the late Board of Censors for administering the oath to Censors, to replace the copy now in use.

Dr. J. A. Ormerod was re-elected a member of the Committee of Management.

The following report, dated October 5th, was received from the Committee of Management:

That paragraph (*c*) of the Regulations for the Preliminary Examination in General Education be amended by the addition of the words "or some other language approved by the Committee of Management," so that the paragraph will read as follows:

(*c*) One of the following languages—namely, Greek, Latin, French, Russian, German, Italian, Dutch, or Spanish, or some other language approved by the Committee of Management.

(The examination must include Grammar, translation into English from unprescribed books, and translation from English.)

After the usual formal College business had been transacted, the President dismissed the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Report of Council.

The *Calendar* for 1920 contains the usual information relating to the history, constitution and personnel of the College, together with the regulations for diplomas, prizes and studentships, and the annual report of the proceedings of Council.

The Council's report gives a record of the work of the College and its various departments from August 1st, 1919, to July 31st, 1920. Three special preliminary examinations for the Fellowship were held for candidates whose studies had been interrupted by the war, and who had done commendable surgical work in connexion with His Majesty's Forces during the war. Of 125 candidates thus admitted, 90 were successful. Another special examination will be held this month. It was also decided, on account of the delay in demobilization of officers in the army in the East, to hold a special examination in May, 1921; applications for admission to this will only be considered from those who have been prevented from returning to this country by reason of the exigencies of service in the East. During the twelve months under review, 301 diplomas of membership were issued, including 44 to women. Sixty men and two women were admitted to the Fellowship. The Licence in Dental Surgery was granted to 82 men and 5 women. The Diplomas in Public Health and in Tropical Medicine, granted jointly with the Royal College of Physicians, were issued respectively to 54 men and 5 women, and to 13 men. No dissertations were received for the Jacksonian Prize of 1919. The subject for 1921 is "The pathology, diagnosis, and treatment of tuberculous disease of the spinal column, with its complications."

The Services.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY.

An International Congress of Military Medicine and Pharmacy has been organized by the Service de Santé of the first Belgian Army, and will take place at Brussels in June, 1921. All medical men or pharmacists who belong or have belonged to the armies of the allied or of neutral countries are invited to take part. The object of the congress is to gather together representatives of military and naval medicine from these nations, so that the experience gained by each during the war may be correlated and the lessons learnt may be communicated and compared. Discussions will take place on the treatment of fractures of the limbs; on campaigns against venereal disease and tuberculosis in the forces; on the chemistry and physiology of poison gas, the sequelae of gas poisoning, and the significance of these in the assessment of incapacitation; and on the general organization of army medical services. Those proposing to attend the congress are asked to write to the honorary general secretary, Dr. Jules Voncken, Hôpital Militaire de Liége, to whom the title of intended communications, together with a brief abstract, should be sent not later than April 1st, 1921.

ADMIRALTY FEES FOR CIVIL PRACTITIONERS.

The scale of fees authorized by the Admiralty for civilian medical practitioners attending naval ratings who are taken ill whilst on leave has been amended. The revised scale comes into force as from June 1st, 1920. The fee for each visit, including cost of drugs and weekly medical certificate, is increased from 2s. 6d. to 3s. 9d. for distances under one mile; the fee for a night visit (between 10 p.m. and 7 a.m.) is 5s. 3d. For visits beyond one mile the fee by day is 4s. 9d. and by night 7s. 3d.; beyond two miles, 5s. 9d. and 9s. 3d.; beyond three miles, 6s. 9d. and 11s. 3d.; and over four miles but under five, 7s. 9d. and 13s. 3d. For each mile above five there is an additional fee of 1s. by day and 2s. by night. In very exceptional circumstances the commanding officer, if he considers the fee under the above scale inadequate, may refer the case to the Admiralty, with a view to payment at a higher rate.

Medical News.

THE Duke of York will declare open the new premises of the London School of Tropical Medicine and the Hospital for Tropical Diseases, Endsleigh Gardens, on Thursday, November 11th, at 2.30 p.m. His Royal Highness will be received by Lord Milner and the Marquess of Milford Haven, President of the Seamen's Hospital Society.

DR. J. BRINDLEY JAMES has been elected president of the Society of Members of the Royal College of Surgeons of England for the eighth time.

THE Post-Graduate College and Past and Present West London Hospital Dinner will be held at the Café Royal, Regent Street, on Saturday, November 13th, 1920, at 7.15 for 7.45 p.m. The chair will be taken by Mr. H. J. Banks-Davis.

DR. B. A. RICHMOND, lately Secretary of the London Panel Committee, and now one of the Regional Medical Officers to the Ministry of Health, was on October 26th presented with a silver tea service by past and present members of the London Panel Committee. A large number attended the presentation, which was made by Dr. H. J. Cardale, Chairman of the London Panel Committee, and supported by Dr. Lauriston E. Shaw, the Treasurer. Dr. Richmond expressed his thanks and pleasure at receiving such a testimonial to his services as Secretary of the London Panel Committee for over six years.

THE second annual dinner of the Queen's University of Belfast Services Club will be held in Thompson's Restaurant, Belfast, on armistice night, November 11th, at 6.45 p.m. Colonel Thomas Sinclair, C.B., F.R.C.S., will preside.

THE half-yearly dinner of the Aberdeen University Club, London, will take place on Thursday, November 18th, at 7.30 p.m., at the Criterion Restaurant, Piccadilly, under the chairmanship of Sir Francis Ogilvie. Dr. Milligan, 11, Upper Brook Street, W.1, will be glad to hear from any graduate desirous of being present.

A POST-GRADUATE LECTURE will be delivered by Dr. Ralph Vincent on practical points in difficult cases of infant feeding and management at The Infants Hospital, Vincent Square, Westminster, on Tuesday, November 16th, at 5 p.m. Admission to the lecture is limited to members of the medical profession.

ON the occasion of his retirement from medical practice to take up the post of Regional Medical Officer under the Ministry of Health, Dr. John Orton of Coventry was entertained to dinner by the panel practitioners of Coventry and Warwickshire on October 26th at Coventry. Dr. Latimer Green presided, and on behalf of his brother practitioners presented Dr. Orton with two easy chairs and Mrs. Orton with a pendant, as a mark of esteem and in recognition of Dr. Orton's valuable services as chairman of both the Coventry and Warwickshire Panel Committees since the inception of the Insurance Act in 1913.

THE work of Dr. F. H. Haynes of Leamington, who has recently completed fifty years' service at the Warneford Hospital, was accorded public recognition on October 16th, when, at a meeting of subscribers held in the council chamber of the Town Hall, he was presented with his portrait in oils. The portrait is to be hung in the board room of the hospital, and a replica was given to Mrs. Haynes.

THE Registrar-General's weekly returns show that during the thirteen weeks, July 31st to October 23rd, 1920, the number of cases of scarlet fever in the Metropolitan Asylums Board and London fever hospitals at the end of each week were as follows: 1,956, 2,027, 2,106, 2,150, 2,266, 2,402, 2,633, 2,953, 3,305, 3,717, 4,121, 4,534, 4,859. During the same succession of weeks the number of cases of diphtheria in hospital were 1,481, 1,469, 1,413, 1,362, 1,391, 1,404, 1,484, 1,591, 1,700, 1,778, 1,884, 1,975, 2,113. It is noted that the figures relating to cases of infectious fever in hospital do not refer to London exclusively.

THE twenty-sixth congress of the Italian Medical Society will be opened in the Polyclinic, Rome, on the morning of Tuesday, November 9th.

THE celebration of the golden wedding of Dr. W. G. Stevens, who for thirty-five years has been medical officer of health for Renfrew, was made the occasion of a presentation to him, by the provost, magistrates, councillors, and officials of the burgh, of a gold and enamel box. In making the presentation Provost Ferguson referred with appreciation to the energy and perseverance shown by Dr. Stevens as a pioneer in accomplishing much-needed reforms.

THE dinner of the Epsomian Club will be held at the Trocadero Restaurant, Piccadilly Circus, on Thursday, December 9th, at 7 p.m., under the chairmanship of Dr. H. A. Kidd. The annual meeting of the club will be held at 6.30 p.m.

PROFESSOR ROGET'S third and last Chadwick Lecture, delivered on October 29th, treated of the work mapped out for the Public Health Department of the League of Red Cross Societies in the civil community. The lecturer referred again to the Cannes Conference, held in conjunction with the Convention of Red Cross Societies in Geneva last spring, and also to the Medical Advisory Board of the League, which met for the first time in July. He described how the work to be undertaken had been divided into seven sections: a section concerned with social diseases, considering more particularly venereal complaints; a section for the prevention of malaria, another for the prevention of tuberculosis, a fourth on preventive medicine, a fifth on child-welfare, a sixth on nursing, and the seventh, the educational section, comprising propaganda work, publications and statistics.

THE winter exhibition at the Royal Academy is of more than ordinary interest. By the generosity of the King of Spain and many Spanish gentlemen, supported by King George and a number of English collectors, nearly five hundred pictures have been brought together illustrating the history of Spanish painting from the fourteenth century to the present time. An annotated catalogue of the paintings down to 1828, the date of Goya's death, has been prepared by Don F. J. S. Canton. Of Goya himself there are twenty-four examples, and his early period, illustrated by such pictures as "Carting an Ashlar Stone," will be a surprise to those who know him only in his later, of which there are several striking examples here, including the gruesome but brilliantly lighted "Pest House." There are ten pictures by Velasquez, one of them—a painting of a buffoon—rather a surprise, if, indeed, it be by Velasquez. The visitor will also become better acquainted with El Greco, Coello, Zurbarán, Ribera, and Ribalta. Many, however, will find their most vivid memory to be that of the portrait of Philip II, painted a few months before his death. It is the work of Pantoja, an artist little known in this country. Of the modern pictures it will be enough to say that Spain appears to have experienced the influence of every movement which has swept through the schools of France.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

"E. T." asks advice in the treatment of an obstinate case of muco-membranous colitis in a woman of 45.

"D. M." writes: Does any institution exist in this country for dealing with young inebriates, in which institution provision is made for regular daily work either outdoor or indoor?

*** A list of institutions for the care and treatment of inebriate cases will be found on p. 454 of the 1920 issue of the *Medical Directory*, also on p. 461 of the 1920 issue of the *Medical Annual*. Before the war a useful list of homes for inebriates was issued by the Friends' Temperance Society, at 15, Devonshire Street, Bishopsgate, E.C.2. The management of inebriate cases has been a feature of the work of the Salvation Army and the Church of England Temperance Society. During the war some of the institutions for dealing with inebriates closed, and have not been reopened. Doubtless particulars regarding approved institutions could be

obtained on application to the Inebriates Department of the Home Office. Until the proposed legislation for dealing with inebriates is brought forward and embodied in the form of a new Inebriates Act it is unlikely that much progress will be made with the establishment of homes and colonies on scientific lines. At present most of the institutions would seem to deal only with long-standing, advanced, and hopeless cases. There is a great need for new powers and proper facilities for the treatment of young and early cases. The whole problem of inebriety is far from solution. Those interested in the scientific study of the question should consult the *British Journal of Inebriety*, which is the official organ of the Society for the Study of Inebriety, of which Dr. T. N. Kelynack is honorary secretary.

Tinnitus Aurium.

"W. A. B." (Bournemouth) writes: Any suggestions from your readers regarding the treatment of this malady will be welcomed, as textbooks give very meagre fare. I have several cases: one is a medical man, aged 64 years, who has been under aural surgeons and had polypi and inferior turbinate removed, but he is still no better. There is some post-nasal catarrh, and discharge found to contain pneumococci, streptococci, and *Micrococcus catarrhalis*, and he is now having a vaccine of these and taking bromides, aspirin, etc. The bruit on lying down is very distressing, but during the day he can do his ordinary work. Is vaccine-therapy likely to be of service?

Fees for Coroners' Inquests.

"W. L. A."—As the law stands at present, if the patient has died in hospital the resident medical officer is entitled to no fee for performing a *post-mortem* examination and giving evidence in the coroner's court. We would refer our correspondent to a Current Note in the Supplement of October 9th, 1920, p. 90.

Income Tax.

"G. P." has received two income tax assessment notices for 1920-21 in respect of certain earnings for the period from January to May, 1920, and asks for some explanation.

*** Having regard to the sums assessed, it seems clear that the blue notice for £42 at 6s. is intended to apply to the period to April 5th, 1920, and is incorrectly headed; the other notice, for £25 less £12 expenses, relates to the period from April 5th to May, 1920. For the first period the special service rate of tax, maximum 3s. 6d. in the £, applies, but that relief was withdrawn so far as periods subsequent to April 5th, 1920, are concerned. If our correspondent has not made a statement of total income for the year 1919-20, he will be required to do so before the relief and allowances are dealt with by the authorities. If "G. P." can arrange an interview with the local inspector of taxes it might facilitate a settlement of this small but complicated matter.

"Beta Gamma" inquires as to the assessment of income received for doing odd locum work and of net income received from property.

*** Income received for occasional locumtenent work is assessable according to the usual three years' average system—that is, on the current year's earnings for the first year, on the same amount for the second year, the average of the first two years for the third year, and thereafter on the average of the three previous years. As regards the income from property, there is a flat percentage for maintenance of one-sixth of the gross rental; on the other hand, increases in rent cannot be brought into assessment—as a rule—unless there are structural alterations or the whole neighbourhood is being completely reassessed to property tax.

"Retd. M.D." inquires as to the assessment of an income which is "entirely unearned."

*** £225 in the case of a married man, or £135 in the case of an unmarried man, is exempted. Of the residue of the income, £225 is taxed at 3s. in the £ and the balance at 6s. in the £.

LETTERS, NOTES, ETC.

A Group of Unusual Cases.

Dr. Montague Dixon (Melton Mowbray) writes: A group of cases occurring in this neighbourhood lately was characterized by what appeared to be a new syndrome. The attack was sudden, with pain on breathing so severe that one patient thought that he would not be able to take sufficient breath to sustain life; coughing was impossible. The pain was precordial and central, settling after a time in the line of the thoraco-abdominal border. Sometimes it was a little more severe on one side; often it spread to the inner end of the left clavicle, or just above. The pain continued to be severe for thirty-six to forty-eight hours, and then gradually disappeared. Physical signs were generally absent; in all the early cases this was so. There was no expectoration and scarcely any cough. The temperature was from 102° to 103°. In some patients there was slight tonsillitis; labial herpes was always present. In two families an infant was first attacked, followed two days later by one parent and the other two children. The last two cases occurred in adult men. After the first few days, when the fever had subsided and the patient no longer felt ill, a harsh pleuritic rub was audible, both at the front and also over an area the width of the hand, at the pulmonary base. There was slight pain both in front and behind; at the same time there was a little cough, and one patient expectorated on one occasion streaks of blood. The first cases suggested a nerve root fibrositis, and the fact that one was accompanied by herpes zoster confirmed this. The last two cases, with an onset exactly similar to that of the early cases, suggested an inflammatory intrathoracic condition. I would emphasize the constant position of the worst pain near the edge of the thorax in front, at the insertion of the recti abdominis; also the striking coincidence of well marked bilateral pleuritic rub with an insignificant amount of pain, and with the absence of illness.

Cerumen.

Dr. Octavia Lewin (London, W.) writes: Dr. Thomas Lewis, in his address printed in the Journal of September 25th, urges the teaching of the normal functions of the human body to the young medical student. The wisdom of this is evidently not universally realized, or Dr. Lewis would not have devoted nearly seven columns to calling attention to it. That there is a real need for a change of front may be evidenced by one comparatively simple example. Cerumen is a protective secretion to prevent insects from finding their way to the drum of the ear. It is only formed at the entrance, but if allowed to accumulate the earlier products are gradually forced inwards by the later, till they reach the drum at last and cause sudden and alarming deafness. The longer it is left the drier and harder and more adherent it becomes, and the pressure on the surrounding structures may cause troublesome symptoms. Chronic dry irritating cough is a well-known common accompaniment. One case has been recorded where mental disturbance was cured by the clearing away of what had developed into a veritable foreign body. When the plug has been removed the result is not always satisfactory, the damage is found not to be repaired; some serious impairment of hearing may and often does remain. Too violent syringing may rupture the drum. When once the patient's attention has been called to the cause of his disabilities the condition should never be allowed to recur, as deafness will follow in due course. Since the wax is only made at the outer end of the meatus it can easily be seen and removed by the aid of direct illumination. Clear bright diffuse daylight is the best. The looped end of a clean, rigid sterilized hairpin is a very suitable instrument, as it is smooth and firm and easily handled, and, moreover, does not remove the protecting covering too completely. If the canal is wiped too thoroughly and cleaned of all secretion then it is left open to the incursions of minute animals. Any access of zeal must be restrained. Should, however, an insect seek refuge in an unprotected area, then a speedy filling up of the canal with oil will stay its beating against the sensitive membrane and float it to the surface once more. Another of the very many and exceedingly important reasons for not allowing wax to accumulate in the ear is the possibility of a concomitant otitis media, a very grave complication. In the examination of school children the presence of excess of wax appears to be so often overlooked that Dr. Lewis's address and warnings should be taken very seriously, even as this one department would show.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 39, 42, 43, 44, 45, and 46 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 40, 41, and 42.

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